

ARCHAEOLOGICAL EXCAVATIONS AT RAUPA: THE 1988 SEASON

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Abstract. The second of two seasons work at Raupa, near Paeroa, Hauraki Plains, is reported. A further 172 m² was excavated, to make up a total of 385.35 m² in two years at the site. In 1988 work was concentrated on the area around a large house found in 1987. Work was also undertaken north of the house in what proved to be part of the defences of the pa.

Two major occupation periods were identified. In the second (later) period an intensive stone working area was located just east of the 1987 house. Artefacts included a burnt wooden bowl and cloaks, large quantities of obsidian and chert, also adzes, patu muka pieces, hoanga, nephrite chisels and ornaments, and tattooing chisels and other bone items. Radiocarbon dates confirm archaeological indications of 18th and 19th century occupation only.

The lack of items of European origin and plentiful stone material in a major settlement of 1820 indicate slow penetration of European material culture since first contact half a century earlier.

The following report describes the results of archaeological investigations carried out in early 1988 at the Hauraki Plains site of Raupa (T13/13, formerly N53/37) on the left bank of the Ohinemuri River at Paeroa (Fig. 1). This was the second of two excavation seasons at the site. The 1987 work also has been described in the *Records of the Auckland Institute and Museum* (Prickett 1990). The excavation took place for four weeks from 18 January to 13 February 1988.

The Raupa work was undertaken in response to a proposal by the then Hauraki Catchment Board to destroy the site in the course of flood control work along the Ohinemuri River. In the event, the discovery of human burials at Raupa resulted in the Board foregoing its 'authority' from the New Zealand Historic Places Trust and leaving the surviving part of the site intact. Also left intact, and for the same reason, was the neighbouring site of Waiwhau which was investigated by University of Auckland archaeologists in conjunction with the work at Raupa (Phillips 1986, 1988; Phillips and Green 1991).

The report on the 1987 excavations includes an introductory section covering the history, environment, archaeological history and research context of the site, which need not be repeated here. It must be said, however, that there were two important contexts for the work which were to some extent developed and modified for the second season's work.

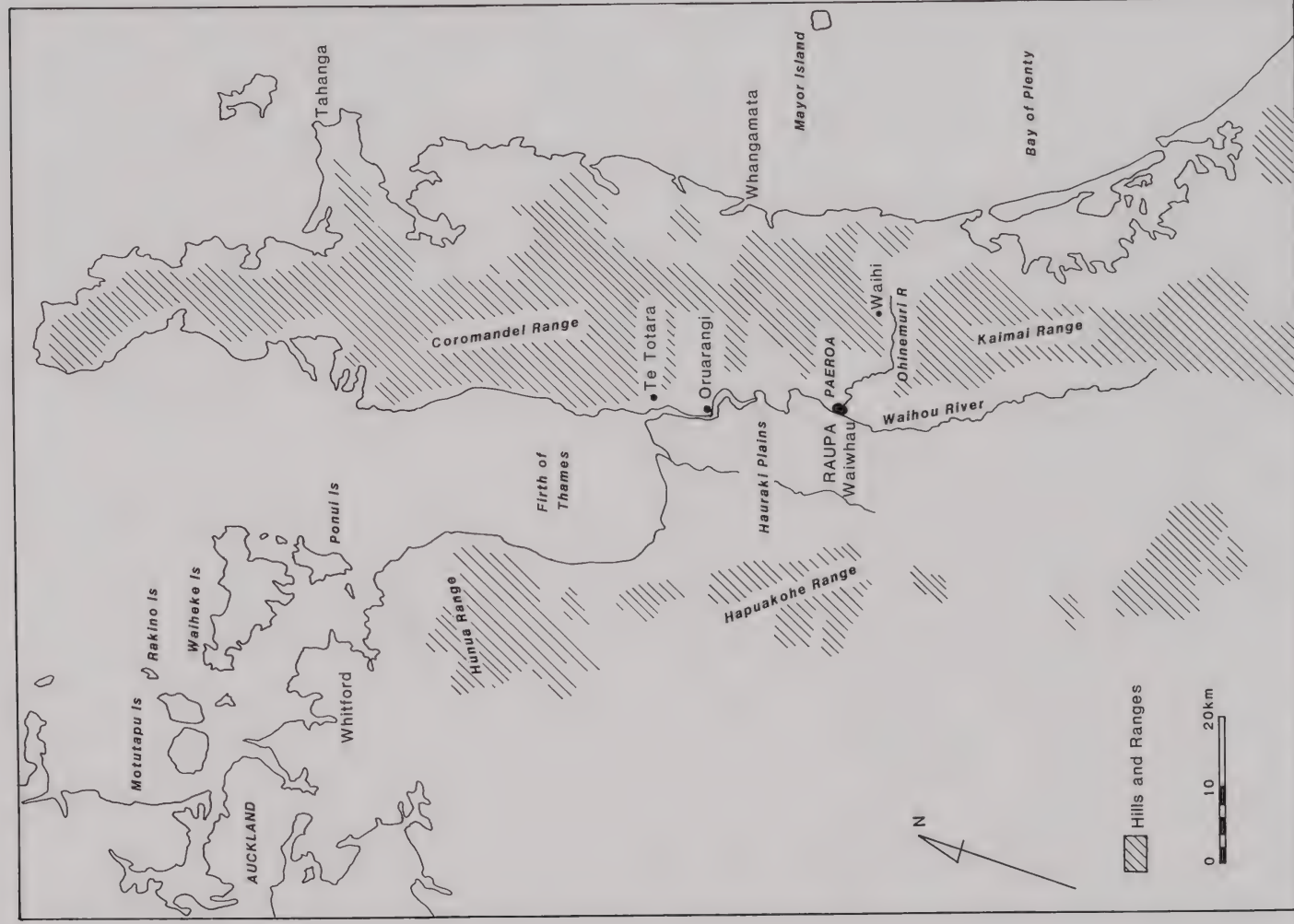


Fig. 1. Location map.

The first was the description by Samuel Marsden of a visit to Raupa in the winter of 1820 (Elder 1930:255-256), and the second was the very large artefact collection from nearby Oruarangi, a site similar in location and form, for which any work on nearby sites might help give a more useful archaeological context. The Oruarangi collection also adds value to any assemblage recovered from Raupa in describing the latter site.

In the first season's work Areas I-V were excavated. Results included discovery of a large house, a food storage pit, stone material dominated by a large quantity of obsidian and chert, also adzes, patu muka pieces and a patu onewa blade. Other artefacts included a pumice pot, fragments of fishhooks, bird spear, needle and tattoo chisels, and a hoanga with incised design. Midden was not found in large quantities and was mostly crushed as a result of being shifted about by the inhabitants of the Raupa settlement. A large number of post holes, the distribution of stone material and other artefacts, abundant kokowai (ochre), the location of midden deposits and some compacted occupation surfaces all helped in the definition of activity areas and description of settlement arrangements.

Ambitions for the 1988 excavation were developed following the first season's work. The objective was to add to knowledge of the site, especially in terms of organisation and use of space within the pa. Any additions to artefactual and economic information also would be gratefully received. The major effort was concentrated in the vicinity of Areas III and IV of the 1987 season, that is the area immediately about the large house found in Area III (see Prickett 1990:78, 109). The intention was to further describe the use of space about this important structure. In 1987 we did not excavate below the house so that it was an important part of subsequent work to fully excavate adjacent areas and thus examine the earlier occupation which we knew to be present from the 1987 Area IV and elsewhere on the site. North of the house a 5 x 5 m square (Area VIII) was excavated to examine an area assumed to lie just behind the defences (Fig. 2).

The following account of the 1988 excavation is divided into three parts. Area VI is described first, then the contiguous Areas VII, IX, X and XI immediately east of Area III, and finally Area VIII to the north. The areas excavated were 47 m² (Area VI), 99 m² (VII, IX, X and XI), and 26 m² at Area VIII, thus totalling 172 m². There were also two machine dug trenches opened up near Area VIII. In the two seasons work 385.35 m² were excavated including 278.6 m² in the immediate vicinity of the Area III house. To put this into context it is worth remembering that the site as a whole may have included a defended area of as much as two hectares or almost 5 acres. Thus in two seasons work we examined *ca.* 2% of the Raupa settlement area.

A brief account of the environment of the Raupa site is needed before the excavations are described. The pa occupied a peninsula at the junction of the Waihou and Ohinemuri Rivers. A narrow neck was cut by a series of three defensive ditch and bank earthworks which could still be seen when the surveyor Courtenay Kenny visited the site in 1893 but which were barely visible when Leslie Kelly was there half a century later (Kelly 1945:207-209). These defences were relocated by Caroline Phillips in 1984 by extensive machine trenching of the northern part of the site which had been badly damaged by the Hauraki Catchment Board taking fill for the renewal of nearby stopbanks a few years earlier.

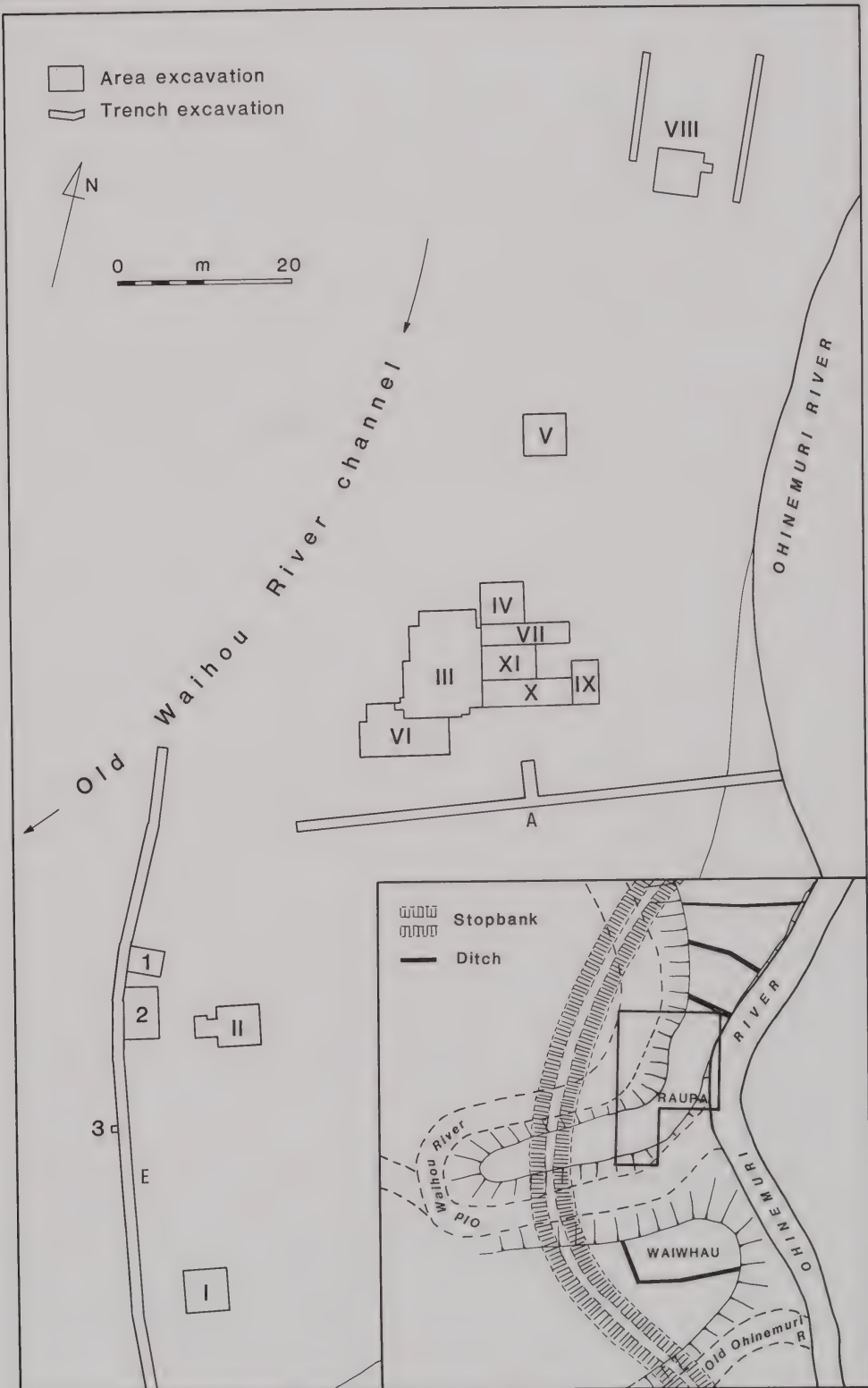


Fig. 2. The Raupa site showing Areas VI-XI excavated in 1988, also Areas I-V excavated in 1987, and 1984 Trenches A and E. Inset shows relationship of Raupa and Waiwhau sites.

Also taken for stopbank fill was water-laid silt, and rock flour from goldmining operations upstream which involved the crushing of quartz bearing rock. Rock flour overlay the entire site and filled the adjacent Waihou River channel, empty since the river was re-channelled early this century. Deep deposits of silt in the site discovered during the 1987 excavations, above and below Maori occupation levels, showed that major flooding episodes were not new.

Raupa occupied a natural levee at the river bank which was higher than the extensive swamp of the Hauraki Plain lying all around. Marsden described it as "a point of high land" (Elder 1930:255). An 1884 map (Anon.) shows a narrow strip of forest occupying the nearby levee, with swamp behind. The swamp provided natural defence for a fortified settlement which could be reached only by the river or perhaps by a narrow winding route along the riverbank levees. In addition to the Raupa and Waiwhau settlements the levees were used for gardening as noted by Marsden in 1820 (Elder 1932:256) and were otherwise clothed in forest dominated by tall and straight kahikatea (*Dacrycarpus dacrydioides*) which so impressed Cook some fifty years earlier (Beaglehole 1955:209). Raupa was a settlement of the Ngati Tamatera tribe. The chief at the time of Marsden's visit in 1820 was Te Hikamate.

THE 1988 EXCAVATION

AREA VI

Area VI was opened up immediately south-west of 1987 Area III (see Fig. 2). The aim was to give context to the house revealed in the first season and to excavate below the level of the house in order to define any earlier occupation periods at this part of the site. At first an area of 40 m² (10 x 4 m) was laid out; this was later increased to 48 m² with a 4 x 2 m extension at the north-west corner (Fig. 5). One of these additional metre squares (E1) had already been partly excavated in 1987.

Stratigraphy

The upper part of Area VI was taken off by machine prior to hand excavation. Thus any recent soil build-up and underlying rock flour and silt was largely removed. Beneath were two major occupation layers described here as Layers 3 and 4. Area VI generally had 250-600 mm of deposit. Detailed descriptions of the layers (for which see Figs 3 and 4) are as follows.

- Layer 1. Blue-grey clay rubble from access road put across the Raupa site to assist Hauraki Catchment Board work in the early 1980s (see Phillips 1986:98-99, 102).
- Layer 2. Compacted yellow rock flour from goldmining quartz crushing operations in the Karangahake Gorge, late 19th-early 20th century.
- Layer 3. Sandy silt, mostly grey in colour but tending to brown above the dashed lines on Figs 3 and 4 indicating a period of soil formation. Includes patches of sand and compacted sand rubble, some stones, shell, charcoal and cultural material.
- Layer 4. Brown clay, tending to black in places. Concentrations of stones in places.
Lies on disturbed surface grading into unmodified Layer 5.

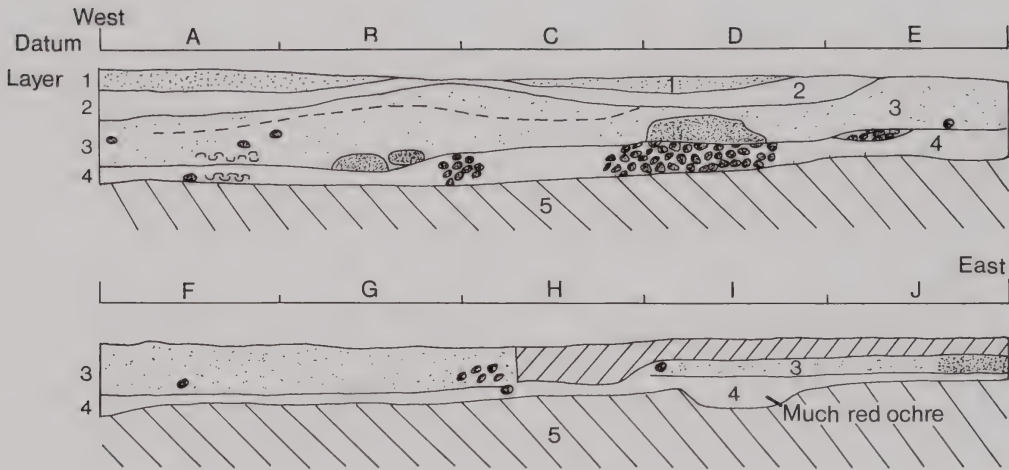


Fig. 3. Area VI north stratigraphical section. Layer descriptions in text. Note that the datum level used in 1988 section drawings is the same as that in the report on the 1987 excavations.

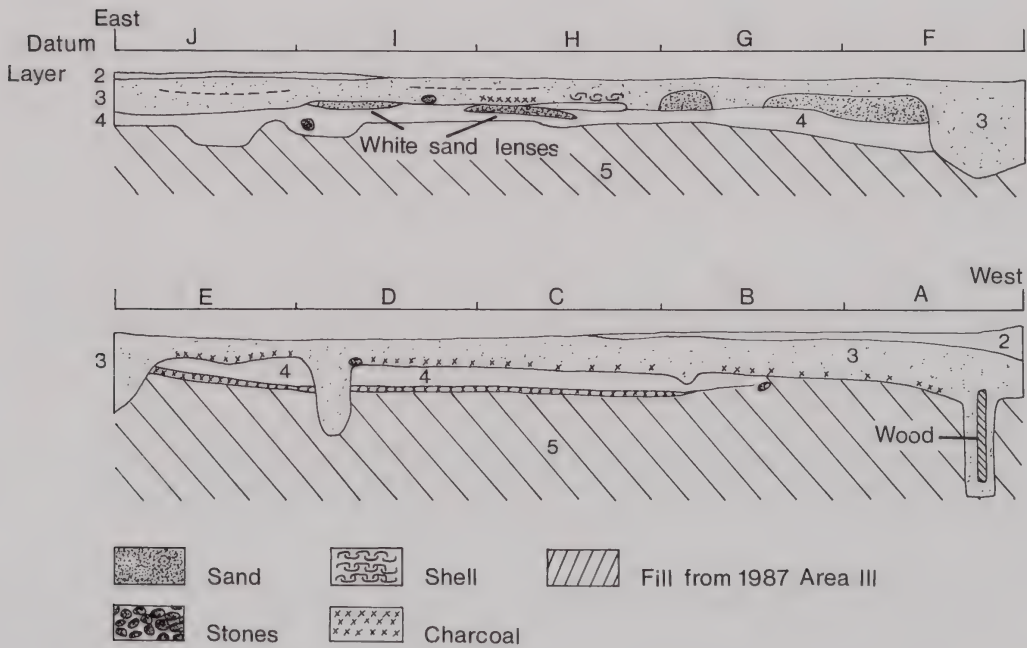


Fig. 4. Area VI south stratigraphical section. Layer descriptions in text.

Layer 5. Yellow clay natural material.

The Area VI south section (Fig. 4) has Layers 2-4 as described for the north side of the excavation. As at the north section, upper parts of Layer 3 tend to brown. At the base of Layer 3 in the west half of the south section is a narrow charcoal band. Close to the east end of Layer 4 are two discreet white sand lenses. A charcoal band lies at the base of Layer 4 in metre squares B-E.

The occupation sequence

In Area VI are two basic occupation levels relating to the Raupa settlement.

Level I. The first use of this part of the site (Layer 4) was for cooking, marked by a number of shallow hangi scoops dug into the surface (Fig. 5). These scoops were dug into each other with only the last of them retaining something of their original shape. The area was not as intensively used for cooking as Area II 30 m to the south, which may have been contemporary, or the north end of adjacent Area III which was used after destruction of the house (Prickett 1990:103-104, 109).

Some hangi scoops were densely packed with fired cooking stones (see Fig. 6). Other cooking stones were scattered about on the surface between the scoops, or, in two places (see Fig. 5), had been brought together in small piles adjacent to hangi scoops where they were ready for further use. Soil within and about the scoops was black and there was charcoal and rare crushed shell (mostly pipi, *Paphies australis*) scattered about in places.

Level II. Spread over the Level I cooking evidence was Layer 3 consisting largely of sandy silt with some material of cultural origin included in places (Fig. 7). This second cultural surface had no evidence of cooking. A few postholes shown on the Fig. 5 plan probably were dug from the Level II surface; most are in the eastern part of the excavated area.

The Level II surface relates directly to the Area III house floor excavated in 1987 (Prickett 1990:109). In Fig. 8 can be seen the west side of the 1987 excavation of Area III, metre square A12, with the previously excavated material visible from *ca.* 100 mm left of the notice board to the metal peg and to a depth of *ca.* 150 mm. Thus, in Area VI, before the house was erected in Area III, Level I cooking ovens were filled in and the ground brought up to the same level as the adjacent house floor. The sandy silt of Layer 3 suggests that flooding may have played a role in levelling up this part of the site. There is evidence from the postholes for a light fence or shed here immediately behind the house but Area VI Level II was largely given over to open space.

Radiocarbon dates

Analysis of two radiocarbon samples has been carried out by the University of Waikato Radiocarbon Dating Laboratory. Both date the earlier Level I occupation. The location of sample material is given in Fig. 5. Results are as follows:

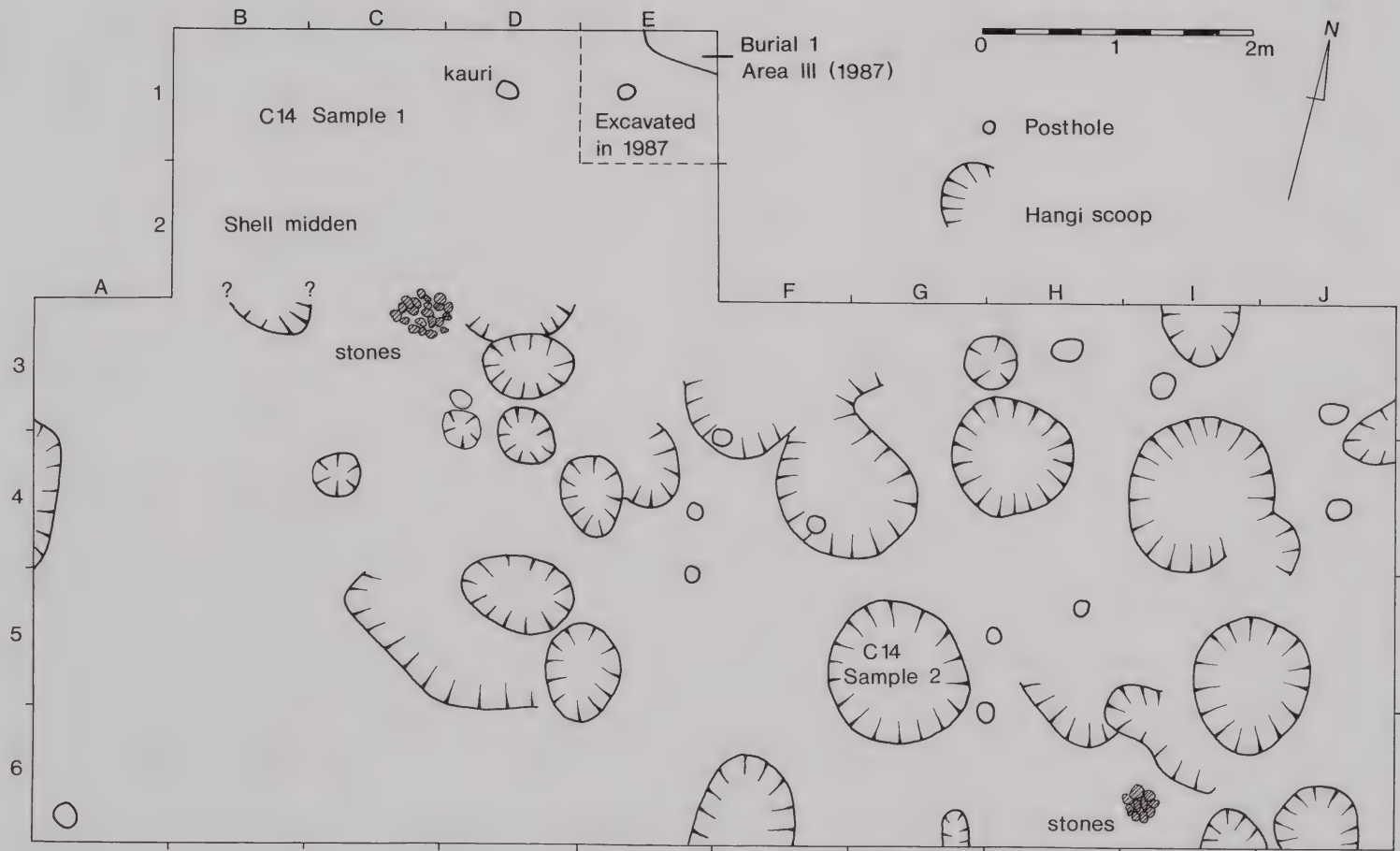


Fig. 5. Area VI, Level I plan.



Fig. 6. Area VI, Level I hangi scoop with oven stones.



Fig. 7. Area VI, surface of Level II.

Sample 1: Pipi (*Paphies australis*)

Sample number: Wk 2039

$\delta^{13}\text{C}$: 0.8 o/oo

Conventional radiocarbon age: 510 ± 50 B.P.

Sample 2: Pipi

Sample number: Wk 2040

$\delta^{13}\text{C}$: 0.7 o/oo

Conventional radiocarbon age: 620 ± 50 B.P.

The conventional radiocarbon age is based on the Libby half-life of 5568 years.

With application of the McFadgen and Manning (1990) correction for the marine reservoir effect (Stuiver *et al.* 1986) these two radiocarbon ages give calendar years as follows:

Wk-2039

Calibrated age range at 95% confidence: A.D. 1690-1950

Calibrated age range at 68% confidence: A.D. 1706-1867

Wk-2040

Calibrated age range at 95% confidence: A.D. 1533-1819

Calibrated age range at 68% confidence: A.D. 1574-1723

It is important to note that despite apparent differences in the two dates, statistically they are of the same age. It is thus likely that the two radiocarbon dates refer to a single occupation period. This reflects the comparatively thin Level I occupation surface and the lack of cultural material, which together strongly suggest a brief occupation.

The two determinations may be pooled following Ward and Wilson (1978) to give a mean radiocarbon age of 565 ± 35 B.P. Corrected according to Stuiver *et al.* (1986) this gives a calibrated age range for the pooled date as follows ($\delta R = -30 \pm 13$, McFadgen and Manning 1990):

Calibrated age range at 95% confidence: A.D. 1658 - 1829

Calibrated age range at 68% confidence: A.D. 1678 - 1728 57% probability

A.D. 1743 - 1792 43% probability

Adze

In metre square J5, Layer 3, was found the blade part of a once finely finished greywacke adze (Fig. 23). The form is of a sharply defined shallow rectangular cross-section, unlike any other found at Raupa but very similar to one from Oruarangi which is illustrated by Fisher (1936: Fig.3, and see measurements given on p. 18) and included among his Type B. The fragment is highly polished overall except for a small line of hammer-dressing down one margin. The severely battered blade is 54 mm in length and the maximum depth of the recovered fragment is 15 mm.

For cultural reasons, this image has been removed.
Please contact Auckland Museum for more information.

Fig. 8. Area VI, east section of metre square E1 showing location of Burial 1 excavated in 1987 at the north (left) end. Approximately 100 mm left of the notice board a vertical line can be seen to a depth of *ca.* 150 mm, this marks the Area III house floor. The pale fill beneath lies on top of the Level I surface which is exposed in the foreground. Scale has 250 mm intervals.

Nephrite

Also from metre square J5, Layer 3, came the broken fragment of a nephrite chisel (Fig. 34). The chisel was highly polished to a rectangular cross-section 11 x 7 mm, the remaining butt end fragment being 46 mm in length. The stone is pale green pounamu or nephrite.

Patu muka

Two patu muka handles were found in Area VI: both were assigned to Layer 3 and thus relate to the Level II occupation period. Together with two items found in Area IV in 1987 and other fragments from Areas VII and X reported below, a total of six patu muka are represented by pieces recovered during the Raupa excavations.

From metre square C5 came the well formed handle and part of the main body of a massive patu muka (Fig. 24). The raw material is a fine-grained andesite such as makes up a large part of the nearby Coromandel Range and peninsula. This item was not broken through use but is clearly fire cracked, either accidentally or as a result of the already broken patu muka being used as an oven stone and suffering more damage as a result. On one side

is evidence of kokowai grinding with some hammer-dressing over part of the red surface to indicate subsequent use as an anvil, perhaps for the breaking up of kokowai lumps.

The second item, from metre square E5 is a handle end, fashioned from a medium-grained andesite (Fig. 25). Unlike the other handle, the butt end found in Area X (see Fig. 26) and the handle found in Area IV in the first season (Prickett 1990:146), in this case there is only the slightest knob at the handle end. This minimal shaping of a patu muka from a water-rolled stone of the right basic shape is common also among Oruarangi examples now in the Auckland Museum.

Obsidian

A total of 151 pieces of obsidian weighing 862.1 g was recovered from Area VI (Table 1). The average weight per square metre is 18.34 g for the fully excavated 47m². More than 80% of the total was assigned during excavation to Layers 1-3, almost all of it to Layer 3, i.e. to the upper occupation level. Lower occupation level (Layer 4) material was largely confined to the eastern part of the excavated area.

Approximately 70% of pieces were less than 5 g in weight, of which almost half were tiny fragments less than 1 g. Of the total number of flakes, 14.6% weighed 5-10 g, 8.6% 10-12 g and 6.6% more than 20 g. Outstanding was a 79.9 g flake of grey obsidian, probably from the Waihi source, with some water-worn cortex to indicate an alluvial origin. Another large flake, this time of green Mayor Island material, weighed 76.6 g. It displayed possible edge damage in the form of a notch on one side.

More than half the obsidian pieces (*ca.* 53%) showed no sign of use from cutting or scraping tasks. One-third of these were classed as shatter waste, and the remainder waste flakes struck accidentally or on purpose from a larger block. Of the 47% displaying evidence of use in one form or another, *ca.* two-thirds had uni-facial edge damage or possible edge damage. Some of these items may have been broken from a larger piece after use as a tool; for example, a 0.2 g flake with edge damage from metre square J5 can hardly have been used on its own. Most of the remainder displayed a mixture of battered, edge-damaged and notched margins. A few pieces have the appearance of core remnants from which flakes were struck when needed.

Almost all the obsidian is green in transmitted light and in all probability originates from Mayor Island. Among this material are some pieces which have original cortex from water-rolled boulders or flow margins. Of other material, four pieces totalling 82.6 g have been identified as originating from the Waihi source (Moore and Coster 1989), with another seven of pale grey material (total 7.0 g) indicating a central North Island or Coromandel source. Raw material percentages by weight are: Mayor Island 89.6%, Waihi 9.6% and pale grey 0.8%.

There is little to be said of the distribution of obsidian in Area VI. Layer 4 material is strongly concentrated on the eastern half of the excavated area and may reflect only one or two episodes of use. More abundant Layer 3 obsidian is widely scattered, with metre squares of greater than average weight occurring commonly to the south and west.

Table 1. Summary of Area VI obsidian distribution; of a total of 151 pieces of 862.1 g. Refer to Fig. 5 for metre square locations.

Square	No.	Layers 1-3 Wt (g)	No.	Layer 4 Wt (g)
B1	1	0.9		
C1	2	2.7		
D1	2	0.7	1	10.4
E1(see Area III square A12, Prickett 1990:119)				
B2	1	3.9		
C2	4	39.2		
D2	2	5.2		
E2	4	10.6		
A3	7	27.7		
B3	1	0.2		
C3				
D3				
E3	1	4.6		
F3	4	52.8	2	4.4
G3	2	4.6	1	5.3
H3	2	18.2		
I3			2	10.5
J3	4	18.1	2	9.5
A4				
B4	9	9.4		
C4				
D4	1	28.3		
E4	1	5.1		
F4	3	2.3		
G4	5	53.4		
H4	1	2.6		
I4	10	53.9	5	22.3
J4	9	31.0	1	2.1
A5	9	47.9		
B5	5	43.2		
C5	1	17.4		
D5				
E5	3	2.0	1	76.6
F5	3	8.5		
G5	1	0.7		
H5	8	22.1	1	4.5
I5	5	2.6		
J5	1	0.3	1	0.2
A6	3	8.6		
B6	2	3.6		
C6	1	30.2		
D6				
E6	4	122.8		
F6	1	0.6	2	11.6
G6				
H6				
I6	1	0.3	2	7.7
J6	5	7.8	1	3.0
	129	694.0	22	168.1

Chert

Ninety-eight pieces of chert weighing a total of 2054.7 g were recovered from Area VI. Nine pieces (120.7 g, 5.9% of the total) were assigned to Layer 4 (Level I) during excavation; the remainder and vast bulk of material came from Level II.

Table 2 outlines the distribution of chert by metre square and layer (see Fig. 5). The distribution is in very marked contrast to that of obsidian. The latter is most strongly represented in the eastern part of the excavated area while chert is concentrated at the western end. From only five metre squares (C4, E4, B5-6, D6) was recovered 1325.6 g or 71% of the total Layer 3 chert. If eight adjacent squares are added then these 13 m², a quarter of the whole, account for 88% of all Level II chert.

Cherts from Area VI include a wide range of colours and quality. Most is the same relatively coarse-grained white or creamy white stone that was predominant in Areas I-V excavated in 1987 (see Prickett 1990:91, 120, 133). This stone can vary to pink, red or earthy yellow colours and may be of chalcedonic quality in places. A 326.7 g block of uniform cream chert of this type was found in metre square C4, Layer 3. Other large pieces weighed 206.7 g (E4) and 286.0 g (B5). Altogether, in excess of 80% of all Area VI chert is of this raw material, which was almost certainly available from chert bearing deposits in the nearby Coromandel Range.

Other cherts were varied. Two fragments of jasper with white hydrothermal veining and black water-rolled cortex which totalled 35.7 g, were found in square B6, Layer 3. A piece of cream chert with grey and ochre coloured veins from square D6 weighed 113.5 g. A number of small pieces of high quality fine-grained white or creamy white chert were found, including two fitting pieces (27.3 g) from F4 which display some previous and subsequent flake removal and also possible edge damage through use. A 12 g piece of good quality creamy white chalcedonic chert probably relates to the predominant typically coarse chert which occasionally includes chalcedonic quality material. (An example of the latter is given by an 81.6 g flake of creamy chert from metre square D5 which grades over a few millimetres from a material almost of sandstone coarseness to a translucent chalcedony.) Some pieces have fine striations on one or more faces which are similar in appearance to petrified wood. Other material represented includes poor quality opaque pale grey and fine-grained black and yellow cherts.

Few pieces of chert show any sign of use. More than 75% are shatter rather than deliberate or even accidental flakes. As many as 15 pieces have evidence of deliberate flaking either before the recovered flake was struck or after. Only nine pieces display possible edge-damage as a result of use, with most of this evidence very slight, perhaps even having occurred during or after excavation. Three large pieces may have provided a resource block of material but there is no sign of use as a core. The contrast is marked between the high rate of utilisation of obsidian and the very low rate in the case of the chert.

Kokowai

Kokowai or red ochre was present in large quantities throughout Area VI, in both Levels I and II. Much of it was in the form of tiny pieces which left a smear when cut by

Table 2. Summary of Area VI chert distribution; of a total of 98 pieces of 2054.7 g. Refer to Fig. 5 for metre square locations.

Square	No.	Layers 1-3 Wt (g)	No.	Layer 4 Wt (g)
B1	2	1.4		
C1				
D1	1	0.4		
E1	1	22.5		
B2				
C2				
D2				
E2	3	11.9		
A3	1	2.1		
B3				
C3				
D3	2	5.1	5	111.9
E3				
F3				
G3				
H3				
I3				
J3	4	33.7		
A4				
B4				
C4	2	373.7		
D4	4	37.4		
E4	2	209.3		
F4	2	27.3		
G4				
H4				
I4	3	5.0	2	3.1
J4	4	20.3	1	1.8
A5	9	91.9		
B5	4	356.9		
C5	1	17.1		
D5	1	81.6		
E5	1	28.5		
F5	2	22.4		
G5	2	10.2		
H5	3	14.5		
I5	4	7.6		
J5	2	4.0		
A6	2	75.8		
B6	8	159.5		
C6	4	34.0		
D6	6	226.2		
E6	6	38.9		
F6	3	14.8	1	3.9
G6				
H6				
I6				
J6				
	89	1934.0	9	120.7

the trowel during excavation. The area was also notable, however, for the comparatively large number of substantial pieces of kokowai, some of it of high quality.

Red and yellow ochre were both present, much the greater part being red, ranging from orange/red to a dark wine red/brown colour. The yellow ochre was of a pale but pure yellow colour, much of it, like the red material, still in its unmodified rock form of soft gritty material.

Most of the 25 ochre pieces large enough to be collected came from the southern part of the excavation (metre squares 5 and 6). All except one were assigned to Layer 3 during excavation. The remaining piece came from Layer 4. Also from the southern part of the excavation came six hoanga (grindstone) pieces, some of which had been used for the grinding of kokowai, as indeed the patu muka handle mentioned above had been used as a platform in ochre grinding.

Hoanga

Six hoanga or possible hoanga fragments were found in the southern part of Area VI. All of them are associated with Layer 2 or 3 and thus probably belong to the second occupation period which relates to the Area III house. It is possible they originated in the earlier occupation and were brought in with fill to level up this part of the site; however, the fact that kokowai pieces also largely come from Level II and also from the southern part of the excavation area suggests that hoanga and kokowai originated here and belong together.

The most important item is made up of two fitting pieces of a flat andesite slab hoanga measuring 315 x 205 x 30-40 mm (Fig. 48). The pieces were found in adjacent metre squares A6 and B6. The flat under surface of the B6 piece has been altered by fire since the hoanga broke in half. Before this, the upper surface of the intact hoanga was dished out as a result of grinding to expose the coarse hard rock beneath. This oxidised material is of the right colour and consistency to make up a good quality kokowai and it may have been used for this. Alternatively the fine soft patina material may have been used as a grinding medium against the hard surface beneath. This item has some small areas of kokowai ground into exposed rock but it does not appear to have been used extensively for kokowai grinding. Two pieces of very high quality fine-grained kokowai were found in close association with one half of it - a brick red piece of *ca.* 80 g and a deeper wine red pebble of 7.6 g.

Three small fragments from metre square E6 clearly have been broken off a single hoanga. They measure 54 x 24 mm, 47 x 26 mm and 26 x 20 mm respectively. The raw material is a natural andesite slab. Each piece is marked on the intact flat working surface by finely ground brick red kokowai.

A last item also comes from square E6 and again derives from a natural slab of coarse-grained andesite. It is unclear if it has been used as a grindstone. It has been broken from a larger piece and now measures *ca.* 120 x 95 x 30 mm. The flat upper surface is covered in soft brown patina and some areas of black charcoal.

Other stone

Apart from the large quantity of oven stones there was very little stone material other than that introduced above. A 930 g fragment of greywacke (metre square G4) was probably shattered by fire off the large water-rolled boulder from which it came. Such boulders were much too large for oven stones and most likely were imported as anvils for the beating of fernroot (see for example Fig. 18).

A piece of petrified wood (square F3) 83 x 31 x 18 mm has some red chalcedony at one end. Such material was also found in the 1987 excavation, notably in Areas III and IV (Prickett 1990:123, 134). The raw material was sometimes used for lure shanks where longitudinal strength was needed. Two small pumice pebbles also were among recovered material; both are unused and probably arrived naturally at Raupa.

Kauri gum

Some small fragments of highly degraded kauri gum were found in metre square B4, Layer 3. It was also recovered from Area I in the 1987 excavations (Prickett 1990:94), and the comment may be repeated that kauri gum was used in one method of preparing tattoo pigment.

Material of European origin

A hollow iron tube 3 mm in diameter with encircling (but not screw threaded) grooves on the outside may be 10-15 mm in length. The lump of sand and other material which now encases it as a result of iron oxidisation renders most of the item invisible. Although it was assigned to Layer 3 when excavated it is most likely this object post-dates the Raupa settlement.

AREAS VII, IX, X and XI

At the east side of the 1987 Area III, south of Area IV, excavation was initiated in 1988 with the opening up of a 30 m² (10 x 3 m) Area VII, 15 m² (5 x 3 m) Area XI and 18 m² (6 x 3 m) Area X (see Figs 2, 9). Later Area X was extended to 30 m² (10 x 3 m) and Area XI of 24 m² (6 x 4 m) was opened up between VII and X. Thus the area excavated in this part of the site in 1988 totalled 99 m². To this can be added Areas III (107.6 m²), IV (25 m²) and VI (47 m²) to make a total contiguous excavated area here over the two seasons work, of 278.6 m². Areas VII, IX, X and XI are dealt with together for convenience.

Stratigraphy

Stratigraphy over the combined Areas VII, IX, X and XI was relatively complex, with different materials making up the main occupation levels in different parts of the excavation. In particular Layer 3, the upper occupation layer, varied considerably. Over most of the northern part of the excavation it was represented by a homogeneous grey sandy silt, similar to that encountered in Areas III and IV excavated in 1987 (Fig. 12). Towards the south, however, it was represented by a mass of shell midden and black soil (Fig. 13).

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Fig. 9. View of excavations: Area VI front right; Areas VII, IX and X under excavation beyond with Area XI not yet opened up between them. Trees beyond mark the bank of the Ohinemuri River.

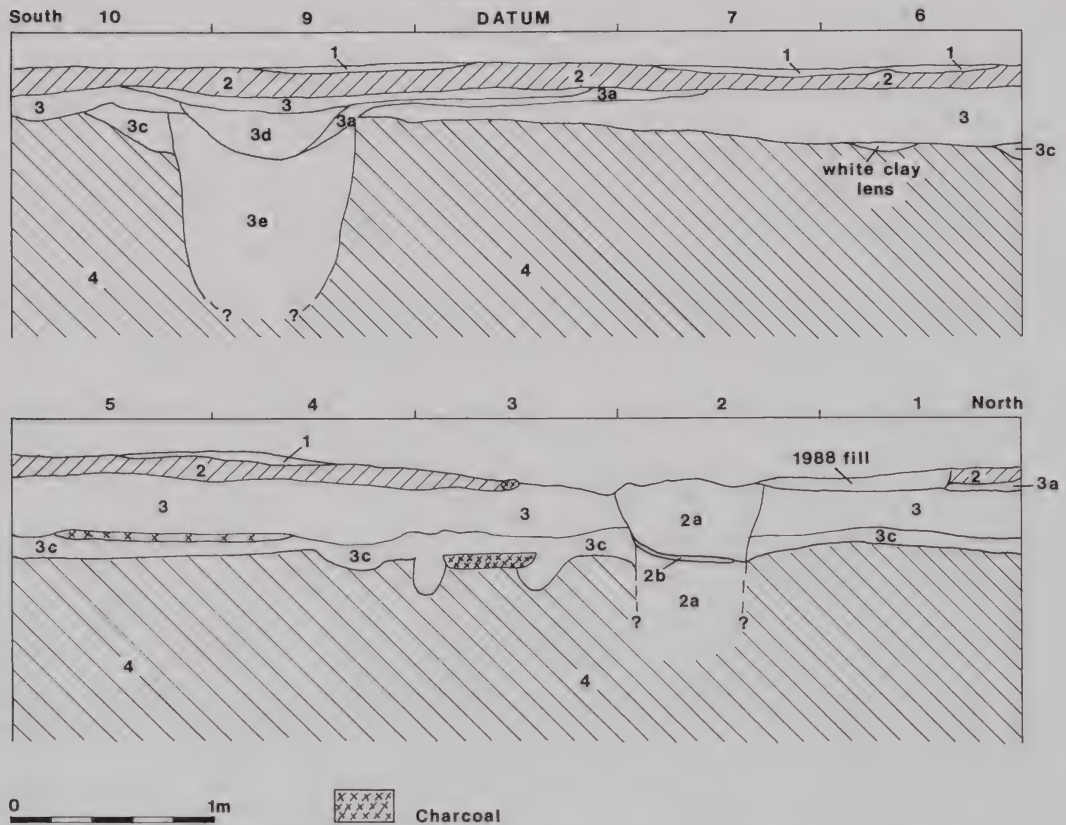


Fig. 10. West section of Areas X, XI and VII (south to north). Layer descriptions in text.

There were also ash and sand lenses. In the following description (and in Figs 10 and 11) different material, which nonetheless belongs to the same stratigraphical unit, is given the same general layer number.

- Layer 1. Surface fine yellow rock flour mine tailings, left after machine stripping of surface prior to excavation.
- Layer 2. Mottled crumbly brown loam. This material was found throughout the Raupa site. In adjacent Area IV it was also labelled Layer 2 (see Prickett 1990:124-125), and in Area III, Layer 3 (Prickett 1990:110). Over some of Areas VII, IX-XI it was missing, probably having been stripped off during removal of fill for the early 1980s stopbank work.
- Layer 2a. Brown-grey silty loam pit fill.
- Layer 2b. Yellow clay lens in pit fill.
- Layer 3. The Layer 3 complex relates to the later (Level II) occupation and includes a large number of layers and lenses. All are designated Layer 3 to simplify reference to Level II material. Layer 3 relates to Layers 3 and 4 in Area IV and to the Layer 4 house occupation surface in Area III (Prickett 1990:110, 125-126, 110). The main body of material ("Layer 3") is a homogeneous grey sandy silt which includes charcoal and shell fragments.
- Layer 3a. Compact dark grey sandy clay loam. This layer is identical to the house floor and related occupation surface of Areas III and IV (Fig. 10).
- Layer 3b. A deposited mass of midden, mostly shell, is largely confined to Area IX and the adjacent eastern end of Area X. In Squares L-M and the lower part of Squares I-K the midden is comprised of dense shell, above this in I-K is some less dense midden in a sandy matrix (see Figs 10 and 12). Charcoal is abundant towards the eastern end. Within Layer 3b are also two distinct sandy lenses and an ash lens (Squares I-K).
- Layer 3c. Grey sandy silt with some clay mixed in and fragments of charcoal and shell. This layer is made up of Layer 3 with a slight admixture of underlying Layer 4, the natural base of the site.
- Layer 3d. Yellow and grey mottled silt/loam pit fill.
- Layer 3e. Pit fill made up of banded brown sandy silt loam.
- Layer 4. Yellow clay natural base of the site.

The occupation sequence

Stratigraphical evidence indicates two major periods of occupation in this part of the Raupa site, as in adjacent Area IV (Prickett 1990:126-128). Over much of the excavation it was difficult to sort out Level I and II features, because of the uniformity of the material which was being excavated. Many postholes were recorded on field plans of both levels; they are excluded here from the lower Level I plan as clearly having originated from the Level II occupation surface where they were first noted. A number of graves and pits in the area date from before and after final occupation of the site.

Level I. First occupation of this part of the Raupa site included areas of midden with charcoal and shell, ash lenses and many post and stakeholes (Fig. 14). Through it had been dug several pits which contained burials or fragmentary human bone.

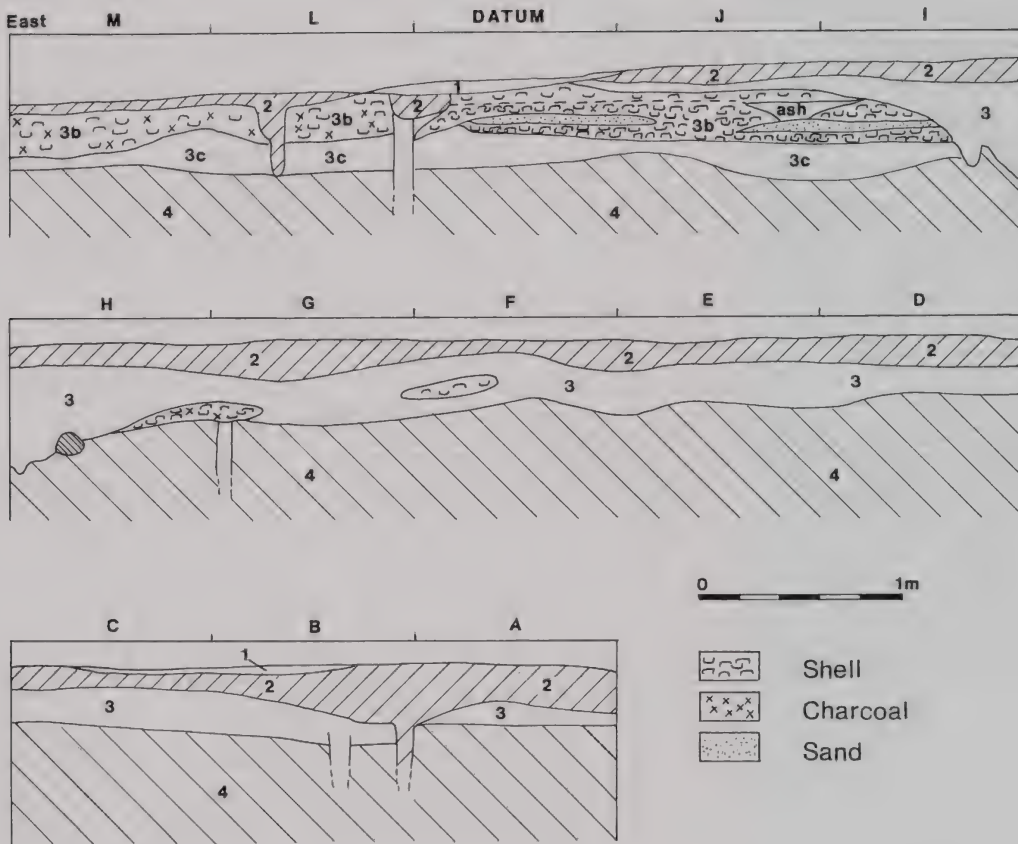


Fig. 11. South section of Areas IX and X (east to west). Layer descriptions in text.

Postholes and hence wooden structures, are concentrated across the southern part of the excavated area. The most interesting group is in Area IX (squares K, L and M) where there is evidence of a rectangular structure, in all probability a dwelling house, *ca.* 2.5 m wide and 4 m long or more. From the archaeological evidence and from historical observations that Maori houses generally faced between east and north (Prickett 1982:129, 131) we probably have the rear and side walls. Surviving timber fragments in what would then have been the rear ridge posthole have been identified as totara (*Podocarpus totara*).

Within the building was found a most unusual feature which may be described as a clay-lined bowl or pit (Fig. 15). This gave rise to some speculation as to its purpose so that it deserves detailed description here. The clay bowl was set 280-320 mm into the ground penetrating 60 mm into the natural base of the site. It was oval in plan measuring 550 x 480 mm, its long axis extending north-north-east/south-south-west. The well formed rim was 40-60 mm wide while lower down the sides and at the base of the bowl the clay was 90 mm thick, to as much as 130 mm at the angle between the near vertical wall and flat base. At some stage in its history the bowl had been relined: the original grey clay with rust brown inclusions and rare pipi fragments was covered by a veneer or crust of brown/black colour over which had been plastered 20-50 mm more of grey clay.

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Fig. 12. Area VII south section. The Level I occupation surface can be seen in the foreground. The Level II surface is clearly visible in the section right of the noticeboard, but above and left of the notice Layers 2 and 3 are mixed without a clear Level II surface.

Fig. 13. Area X south section showing Layer 3 as shallow lenses of shell midden cut by a Level II ditch below the notice board.

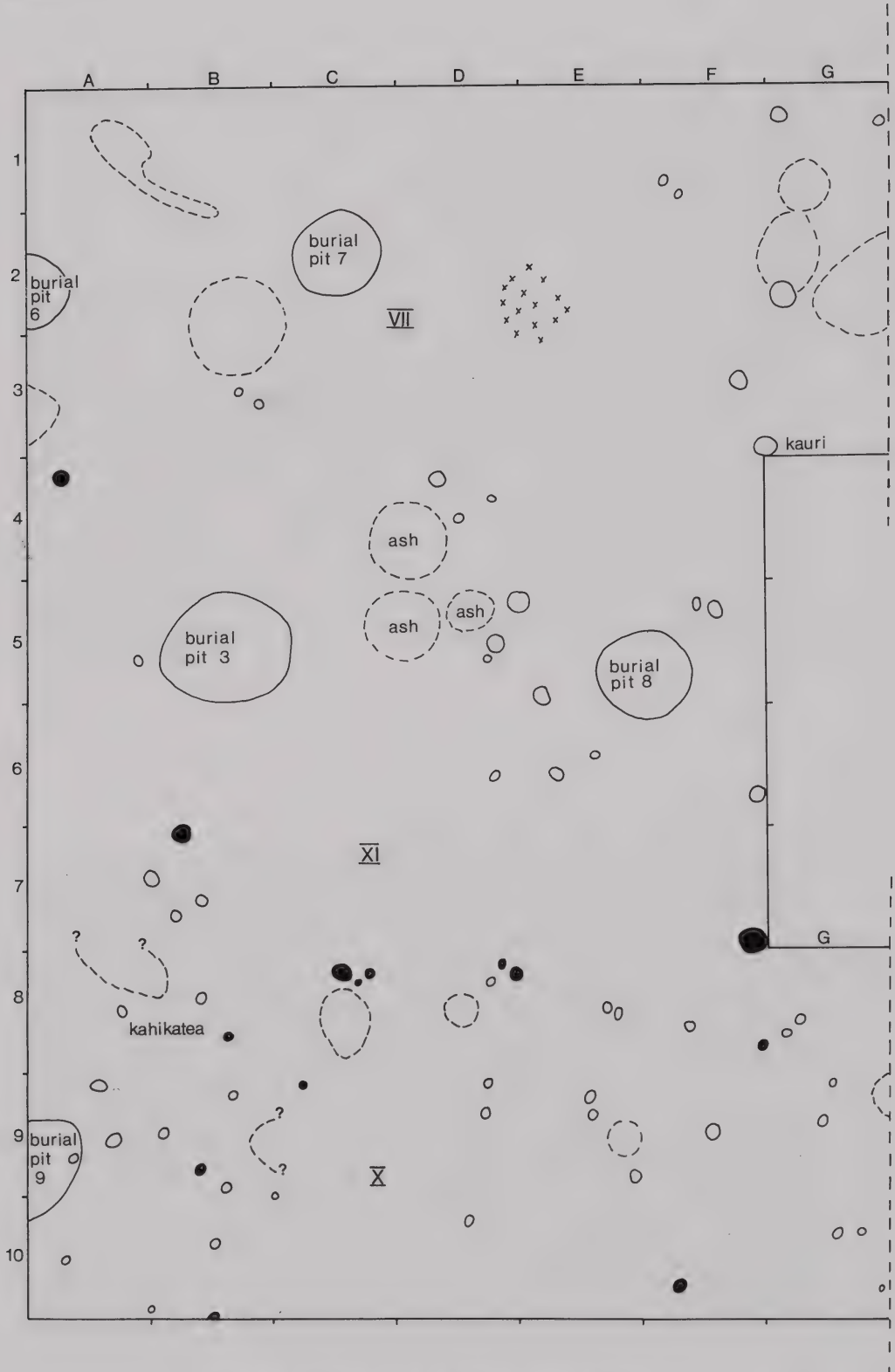
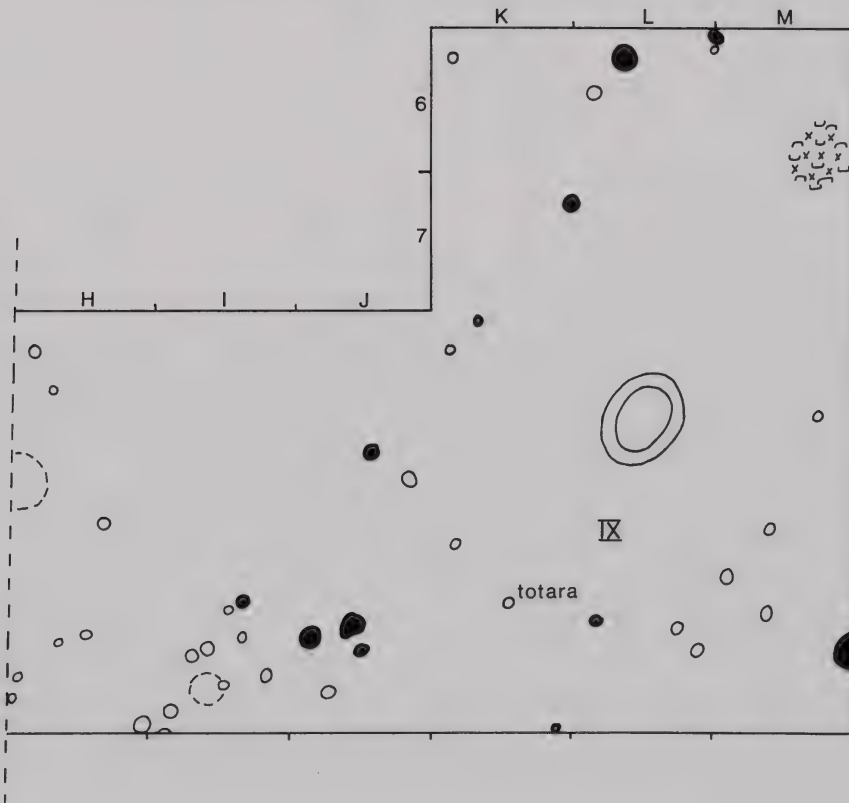
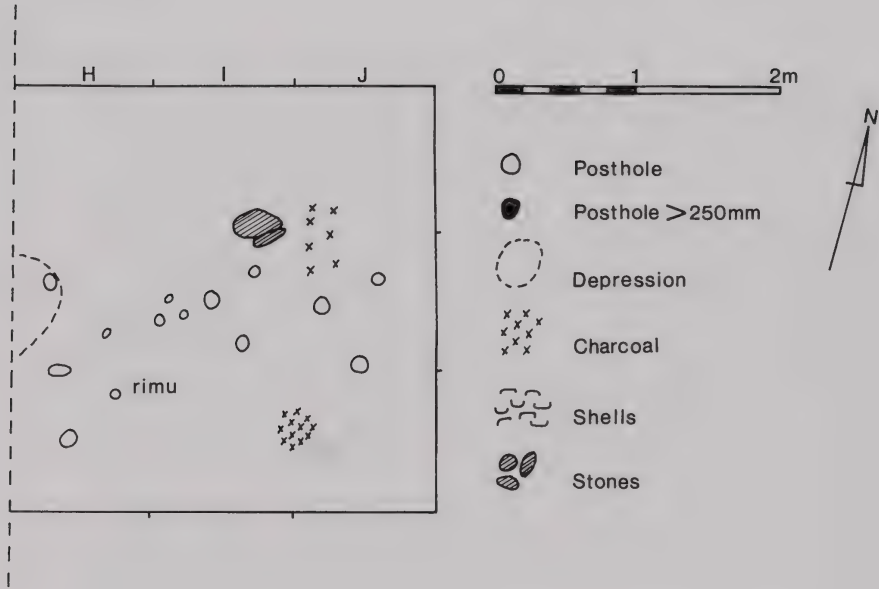


Fig. 14. Areas VII, IX, X and XI Level I plan.



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Fig. 15. Area IX, metre square L8. Clay-lined pit with fill half-sectioned and clay cut down to a depth of *ca.* 100 mm. The shell from overlying Layer 3 can be seen in the upper part of the fill.

There can be little doubt that this unusual feature relates to the house which encloses it. It is *ca.* 1.5 m from the rear wall and midway between the two side walls. The orientation of the long axis of the pit conforms exactly to the house orientation. It is thus located as a fireplace would be - on the house centreline and near the rear wall. It is, nonetheless, a most unusual hearth. Nor is there direct evidence that it was used as such; it contains no ash or charcoal, being filled with 60-80 mm of water-laid dark grey sand, over which was sand and charcoal and, above that, shell from overlying midden material. Within the fill was found a single human wrist bone (right triquetral). Nonetheless, that this feature relates to the house and that it was a hearth seems to be the most economical interpretation.

West of the Area IX house, and confined largely to Area X are postholes which mark several structures. Many of the postholes are paired to indicate replacement. One line of deep holes (greater than 250 mm, see Fig. 14) extends east-west to the corner of metre square F7. From the central pair of deep postholes in this line another line with several paired holes can be traced extending to the south-east. It seems likely these represent a roofed structure as much as 6 m in length and 3 m wide, the remaining evidence for which lies in the unexcavated area to the south. Other groups of postholes which are even less open to interpretation lie between the intrusive Burial Pits 3 and 8 in Area XI, and at the east end of Area VII.

Shallow depressions were found in several parts of the site, notably a group filled with fine ash between the Area XI burial pits and another group in squares G and H, Area VII. Patches of charcoal and some midden in squares M6-7 (but which may properly belong with overlying Level II material) completes the Level I evidence.

Level II. The upper occupation level is contemporary with the Area III house excavated in 1987 and Level II in Area IV (see Prickett 1990:109, 127). In some parts of the excavated area the late occupation level includes more than one event or activity (Figs 16 and 17).

Only at the west part of the area was there evidence of a compacted surface such as was present over the Area III house floor and the adjacent part of Area IV (see Fig. 10). Much of the upper occupation surface was of relatively soft silt loam on which it was not always easy to define the occupation surface (see for example Fig. 12).

Postholes and their surface structures have a very different distribution to those of Level I. Notable is a building in Area VII which included a number of posts identified as totara and kauri (*Agathis australis*) from *in situ* fragments. Some of the pieces of wood were of light dressed planks similar to evidence found in adjacent Area IV in 1987 (Prickett 1990:126). There is a problem here in that in Area IV the dressed planks were assigned to Level I. It is likely, however, that they do belong to the same structure possibly a dwelling to judge from the attention paid to the well-finished posts. The distinct line of posts at the east side of Area IV (Prickett 1990:125) can be seen to extend into Area VII, square E1, before a right-angled corner to the line which includes the kauri and totara posts extending to the east. The difficulty of assigning posts to an upper occupation layer is illustrated by Fig. 25 in the 1987 report (Prickett 1990:114) which shows a trench dug as much as 100 mm below the house floor in order to find some of the associated posts.

At the west side of the excavated area are a number of postholes possibly belonging to two or three lines extending south-west/north-east across Areas X and XI. If there was a roofed structure here as the evidence suggests it must have been very close to the Area III house. In fact it would have been close to the position of a building immediately east of the larger house, as is shown in the artist's reconstruction of the site prepared from evidence of the 1987 work (see Prickett 1990:149).

In various locations about the excavated area were small groups of stones, some of them with charcoal, and in Area IX one with shell also. Such grouped stones are reminiscent of those in Area VI and other cooking areas where they are associated with hangi scoops, which were, however, absent here.

Much larger boulders found in Area VII had an altogether different purpose. These well rounded river boulders weighing 8-12 kg had been brought to the site, probably from the Karangahake Gorge of the Ohinemuri River, a few kilometres upstream. They were found in three locations in Area VII (see Fig. 16) where there were one, two and three stones respectively. One stone was carefully wedged in place by a spawl and smaller stones (Fig. 18). These boulders served as anvils probably for the pounding of fernroot, or possibly also for the beating of flax to soften the fibres for use. This part of the Raupa settlement at the side of the Area III house was clearly an important area for such activities.

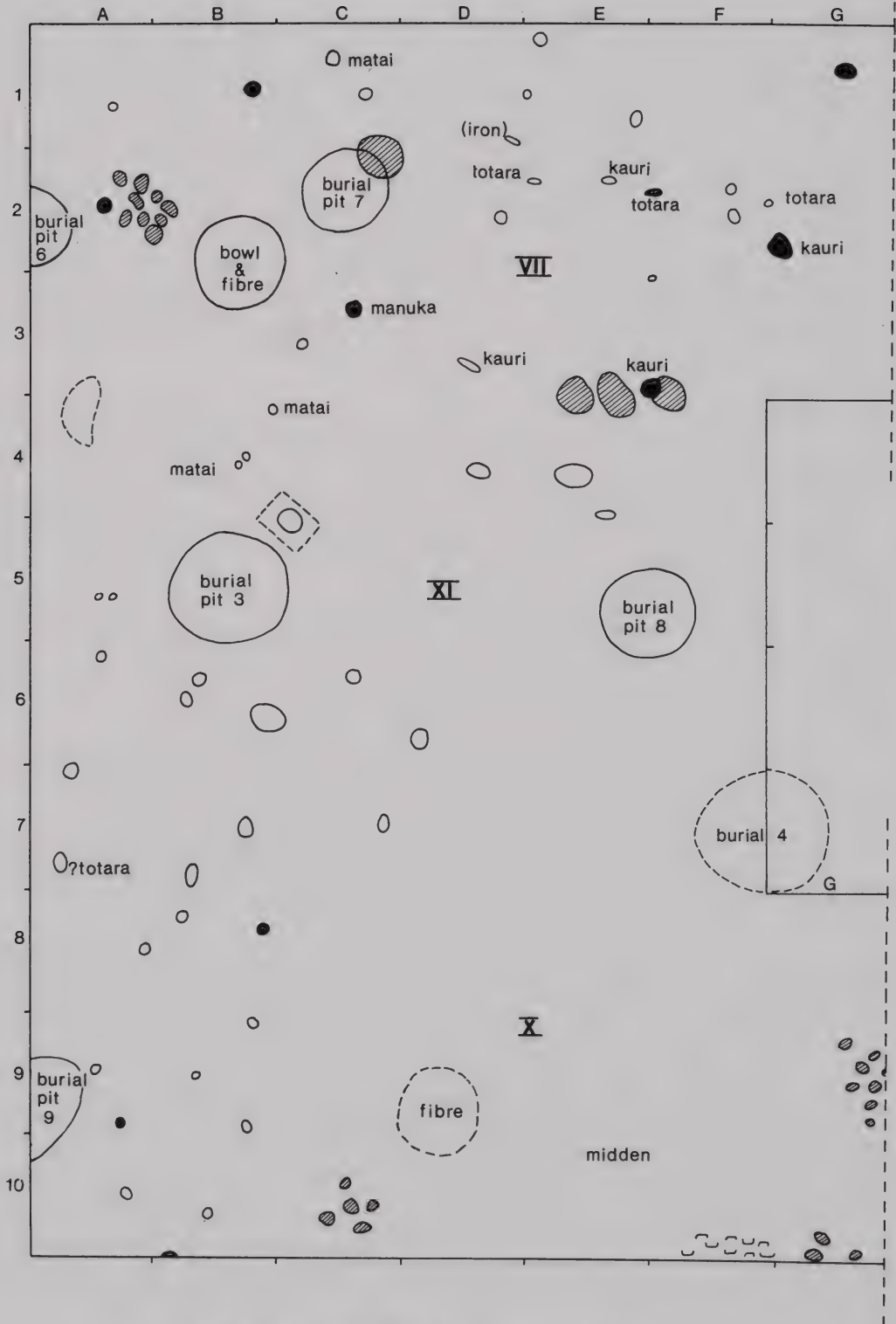
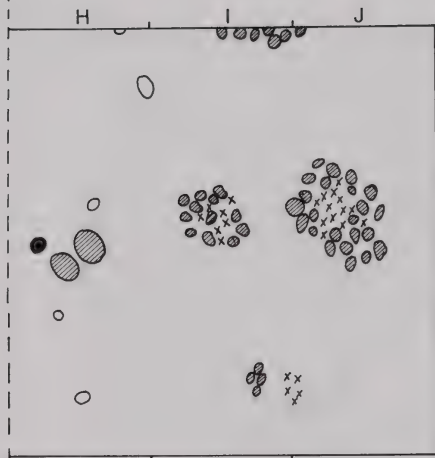
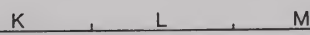
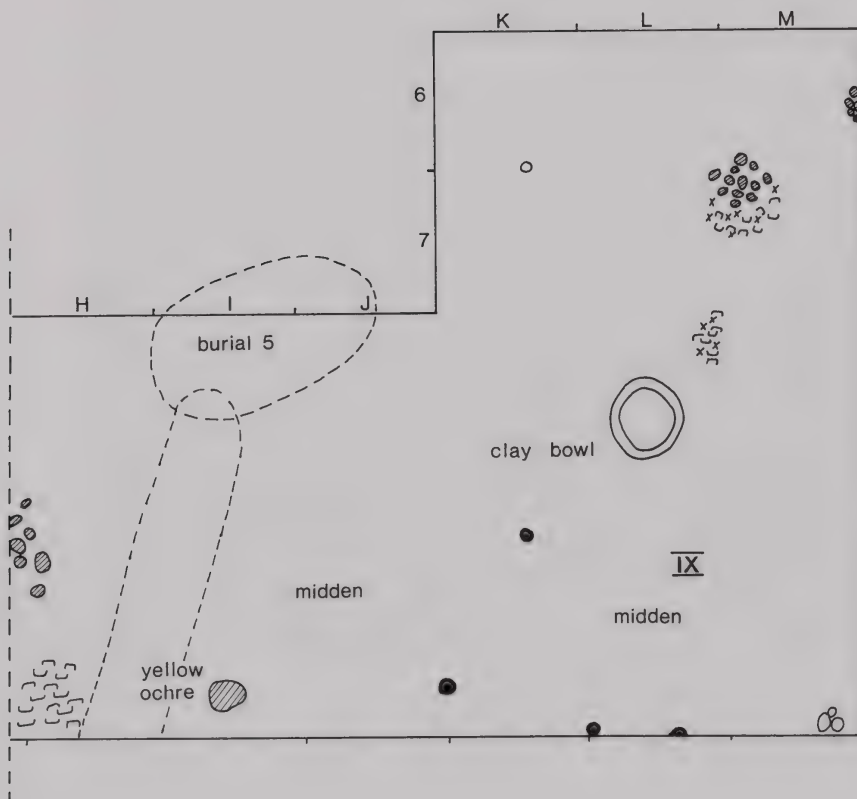


Fig. 16. Areas VII, IX, X and XI Level II plan.



- Posthole
- Posthole > 250mm
- (dashed) Depression
- x x x Charcoal
- Shell
- Stones



- Posthole
- Posthole > 250mm
- (dashed) Depression
- x x x Charcoal
- Shell
- Stones



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Fig. 17. Area VII Level II surface from west. Excavation of burnt bowl and adjacent burial pit 7 has just begun.

Two important finds, near the west end of Area VII and in Area X, were of fragmentary plaited and woven textiles. The material is described in detail by Maureen Lander, also in this volume, and needs only to have its archaeological associations described here.

The Area VII, squares B2-3, find was in a shallow scoop into which had been thrown a wooden bowl made of totara (Fig. 19). Mostly inside the bowl, but also outside and beneath were the burnt fragments of three woven garments and some plaited flax fibre which may have come from a mat (whariki). All had clearly been burned *in situ* as the extreme fragility of the fibre would not have allowed any movement after the fire. The burning had allowed the preservation of valuable information since the wood and fibre would not have survived but for being totally charred.

In Area X there was a smaller find of charred fragments, probably of one garment. While the Area VII material suggested preparation of a fire *in situ*, it is possible the Area X find was a burning fragment which originated elsewhere and was thrown aside before burning was complete. The Area VII fire marks the deliberate destruction of several items which might be considered valuable in terms of the time taken to make them and possibly also in terms of the prestige assigned to them. Ash scattered from squares G and H2 down the east side of Area XI and into Area X may be associated with the shallow fire scoop visible in Fig. 12.

Throughout Area IX and at the east end of X was an extensive area of dumped midden. Many pipi and cockle shells still had the two halves joined to show that this material probably lay where it was initially dumped after use. The midden is almost certainly part of the same extensive deposit which appears as a dense layer in Trench E (see Fig. 2) 10 m to the south.

Also scattered over the surface of Layer 3 were fragments of human and dog bone. As in Area III it was scattered over and in some cases trodden into the occupation surface. Because this was mostly very fragmentary and because some was clearly dog it was brought back to Auckland to undergo detailed identification and examination, for which I am indebted to Elizabeth Hudson.

The mid-section of an adult human palate with some tooth sockets (but no teeth), was found beneath a 170 x 100 mm broken water worn stone in metre square E5. From the same area came fragments of burnt human adult cranial bone scattered in D4, E4 and F5. Clearly it had been burnt in an open fire before being scattered over this part of the occupation surface. Fragmentary human teeth from squares E5 and A7 may be associated although there was no indication of burning. In metre square B2 was found the top part of a human skull with dog mandible and maxilla fragments nested inside. From B5 came some adult foot bones. In addition to the dog bone found with the human skull piece in square B2, most of a dog cranium was recovered from square D5.

Burials

There were three human burials and four pits with some human remains in Areas VII, X and XI. These displayed a variety of burial practices and need to be looked at in turn before general comments can be made. Their locations are given in Fig. 16. Burials 1 and

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Fig. 18. Area VII, metre square C2, anvil stone. A spawl is wedged at the side to hold it in place.

Fig. 19. Area VII, metre squares B2-3, showing the rim of the burnt wooden bowl. Scale intervals at 250 mm.

2 were excavated in 1987 and are discussed in that season's report (Prickett 1990:117). Identification of pits 6, 7, 8 and 9 as burials depended on occasional or fragmentary human bones and plentiful ochre, along with their general resemblance to the burial pit 3 and their location in the same part of the Raupa site. There is also likely to have been an unexcavated burial pit in Area III (Prickett 1990:109, 150).

Burial 3. In metre square B5 and extending *ca.* 180 mm into C5 was a near circular pit 1050 x 900 mm in plan at the surface. It was dug with vertical sides from the top of Layer 3 to a depth of *ca.* 1 m. At the bottom was some fragmentary wood which may have been laid on top of the human remains.

Two human burials lay on top of one another with their heads both to the west, facing south. Only enough of the remains were exposed to show that this was a burial before the pit was refilled. Thus there are some things of which we cannot be sure. Red ochre was thick in the loose soil about the remains and coating the surface of the bones themselves.

The two individuals were buried at one time on top of each other. The upper, and most fully exposed of the two was a young adult, probably male. He lay on his right side with knees drawn up to the chest and left arm lying diagonally over the arm and chest of the burial beneath. The skull had moved slightly, probably with pressure from the settling of soil in the pit, and was lying on its base rather than on its side, facing south. The age of the individual may have been 25-30 years.

All that could be seen of the lower burial in the partial excavations was the head, left arm, right shoulder, part of the pelvis and some fragmentary rib bones. Placed in the pit first, the body appears to have been lying on its back; the head was turned slightly to the south. The left arm was lying diagonally across the chest with the hand brought up beneath the chin. The individual was female to judge from skull features and pelvis form. The teeth were heavily worn and the left first molar at least had been lost during life; this suggests a mature adult, possibly 30-40 years of age.

Further observations can be made regarding the teeth of the two individuals in Burial 3. Both of the first molars of the upper body showed extreme wear, greater than that of the other teeth and with the distinctive slope of wear towards the cheek which is characteristic of the so-called 'fern root plane'. This pattern of wear is associated with a diet which contains a lot of rough foods; it is often found in remains dating from the late pre-European period (Houghton 1980:128-129). The loss of the first molar by the lower individual may show the final result of this pattern of wear which is that the tooth becomes loose in its socket and eventually falls out. There was no visible evidence in either individual of any other dental disease such as decay, calculus or gum disease. This too is consistent with the expected results of a rough diet.

Burial 4. At the south-east corner of Area XI, *ca.* 300-400 mm depth from the surface, was a shallow scoop in which were placed the trussed remains of a young male. The skeleton was complete except for the head and first neck vertebra. The remains were orientated north-east/south-west with the head, were it still present, at the south-west end.

The body was placed on its front with the legs drawn up tightly under the torso. The left arm was at the side with the elbow bent very acutely to bring the hand up beneath the shoulder. The right upper arm, shoulder blade and clavicle (collar bone) and the upper neck vertebrae had also been moved and were lying on the back over the ribs. The right forearm was lying diagonally under the body. Some of the lower vertebrae had also been disturbed but all were present. The disappearance of the head and displacement of neck vertebrae, upper right arm and shoulder and lower spine all appear to result from subsequent disturbance of the grave. Part of the sacrum of another young individual lay over the right side of the burial.

The pelvis shape and long and moderately robust limb bones suggest that the individual was a male. In the absence of the head, and hence the dentition, the best estimate of age is made from the general maturity of the bones which suggest a young person *ca.* 18-19 years of age. The height of the individual, who had completed growth, was calculated at *ca.* 1.78 m (5 ft 11 inches), which is taller than the average of 1.74 m derived from a sample of 44 pre-European Maori males by Houghton *et al.* (1975:330).

A brief examination before reburial showed that this individual suffered at least one period of illness or malnutrition during his childhood. The evidence for this is seen in the lower legs where a small line of abnormal bone (Harris Line) was visible in the broken shaft of the bone. This line indicated disruption and then recommencement of growth. There was also evidence of a hand injury sufficiently bad to infect the bone of the right hand. The injury had occurred some time in the past and was completely healed. Features noted at the back of the spine, the clavicle and on the bones of the knees indicated an active life. The form of bones at the front of the ankle suggest habitual use of a squatting position. There was no evidence as to the cause of death.

Burial 5. Area X was extended to the north-east to fully expose Burial 5 in metre squares J7-8 and J7-8. As with Burial 4 there was no evidence of a pit, but nor in this case was there any sign of a prepared scoop or hole. The body lay on uneven ground with the knees higher than the rest. Indications are that it was laid out on the ground and covered to a depth of 150-200 mm in an area of black soil and some midden waste. Apart from the head the body was not disturbed in any way which argues against it being left lying uncovered.

The skeleton was complete apart from some foot bones, and was lying on its right side with knees bent and slightly drawn up. The arms were lying at the front of the body with the elbows bent. The right hand was beneath the head and the left hand close to it. The skull had rotated slightly backwards and was crushed.

The pelvis which gives the most accurate information for determining sex, was too badly damaged to be useful. The shape of the forehead, eye sockets and lower jaw, together with the general slightness of the bones, suggested that the individual was female. The teeth, including the stage of eruption of the third molars (wisdom teeth) and the immature state of a number of bones, enable determination of age of death to within a narrow range of 16-18 years. The height was calculated at 1.57 m which is consistent with the sex and immaturity of the individual.

The teeth, almost all of them present, showed no evidence of decay and only slight evidence of other dental problems such as calculus and gum disease. Most teeth showed minimal wear. Exceptions were the upper and lower incisors which showed slightly greater wear, and in particular the right upper central incisor which showed an unusual wear pattern. Not only did this tooth show greater general wear but as well there was a shallow v-shaped groove worn in the centre of the biting surface. This suggests that the front teeth, and this one in particular were used more heavily than the rest, either in eating or possibly in the preparation of fibre or some other manufacturing material.

Burial 6. Extending 400 mm into metre square A2 from the west was a *ca.* 600 mm diameter pit. This was not found during the 1987 work in adjacent Area III (metre square J4) although some fragmentary wood close by may be related (see Prickett 1990:109).

The pit was cut from the surface of Layer 3 and must therefore post-date the main occupation period of Raupa and predate the late 19th century mining upstream. In the soft brown/grey fill *ca.* 250 mm below Layer 2B (see Fig. 10) were found a complete adult human tibia, a large lump of ochre and charcoal. The pit was excavated only to *ca.* 750 mm depth - enough to show a marked reduction in diameter with depth. Nor was the excavation extended beyond the Area VII baulk. Thus the full extent of human remains and any associated material are not known.

Burial 7. In metre square C2 a 700 mm diameter pit was apparent at the surface of Layer 2 as an area strongly marked by charcoal and ash (see Fig. 17). On top of the fill at the north-east corner of the pit was a massive water-rolled greywacke boulder. Around and partly beneath it were three smaller stones which appear to have been placed to secure the larger stone (Fig. 18). Thus at least some occupation of the Raupa site took place after the pit was finally filled. Just below the fill surface was a piece of wood, possibly dressed, which measured 170 x 50 x 5 mm. It was charred on one side. Ochre of a purple-red hue was abundant throughout the soft fill.

Carefully placed in the pit, *ca.* 250 mm from the surface, were fragmentary human leg and arm bones (humerus, tibia and femur) probably from a single individual. The pieces were mostly the ends of bones together with small splinters from the shafts. They came from a large robust individual, probably male. Signs of moderate arthritis at the ends of the leg bones suggest a long and physically active life.

The bones found in burial pit 7 may be residue after removal of shafts for the making of artefacts such as fishhooks, ornaments and bird spears. The femur, tibia and humerus are the strongest and thickest parts of skeletal bone and typically were chosen for manufacturing purposes. The cache of fragments here may simply represent disposal of the remains after industrial use.

The pit has a total depth of 900 mm, a shelf half way down greatly reducing the floor area. In the fill at the bottom of the pit was more bone and plentiful red ochre.

The evidence here is for a pit used at first for burial or the disposal of human remains, which were subsequently exhumed to leave small pieces of bone in the ochre-rich soil at the bottom. Later, fragmentary long bones were buried with some care at a shallow depth.

Burial 8. A circular pit 800 x 700 mm in plan and 480 mm deep in Area XI, metre squares E5-6 and F5-6, was originally dug from the surface of Layer 3. High in the fill were several dog bones. From *ca.* 300 mm depth ochre was abundant in the soft material, but below was only one human patella or kneecap. Comparison with other pits and the abundant ochre in the fill strongly suggest there was a human burial here. It is possible the pit was re-excavated at some time in the past and the bones removed for secondary interment or industrial use.

Burial 9. Extending from the west baulk of Area X in metre squares A9-10 was a 1.35 m deep pit, *ca.* 900 mm in diameter at the surface of Layer 2 from which it was cut. At the bottom of the pit were some fragments of human bone and abundant red ochre.

The shape of this pit, its proximity to other pits which were, or appear to have been, dug for burials, and the presence of human bone and ochre combine to suggest that this was a burial pit. It resembles burial pits 6, 7 and 8 in the presence of only a few bones, and pits 3, 7 and 8 in the presence of abundant ochre. As was the case with other burial pits the bone at the bottom of the pit was not fully excavated and so is not described here.

Burial 10. In the 1987 excavation season a damp depression at the south end of the house in Area III (Prickett 1990:109, 150) was not excavated. Experience in 1988 shows that this probably marked the presence of a burial pit.

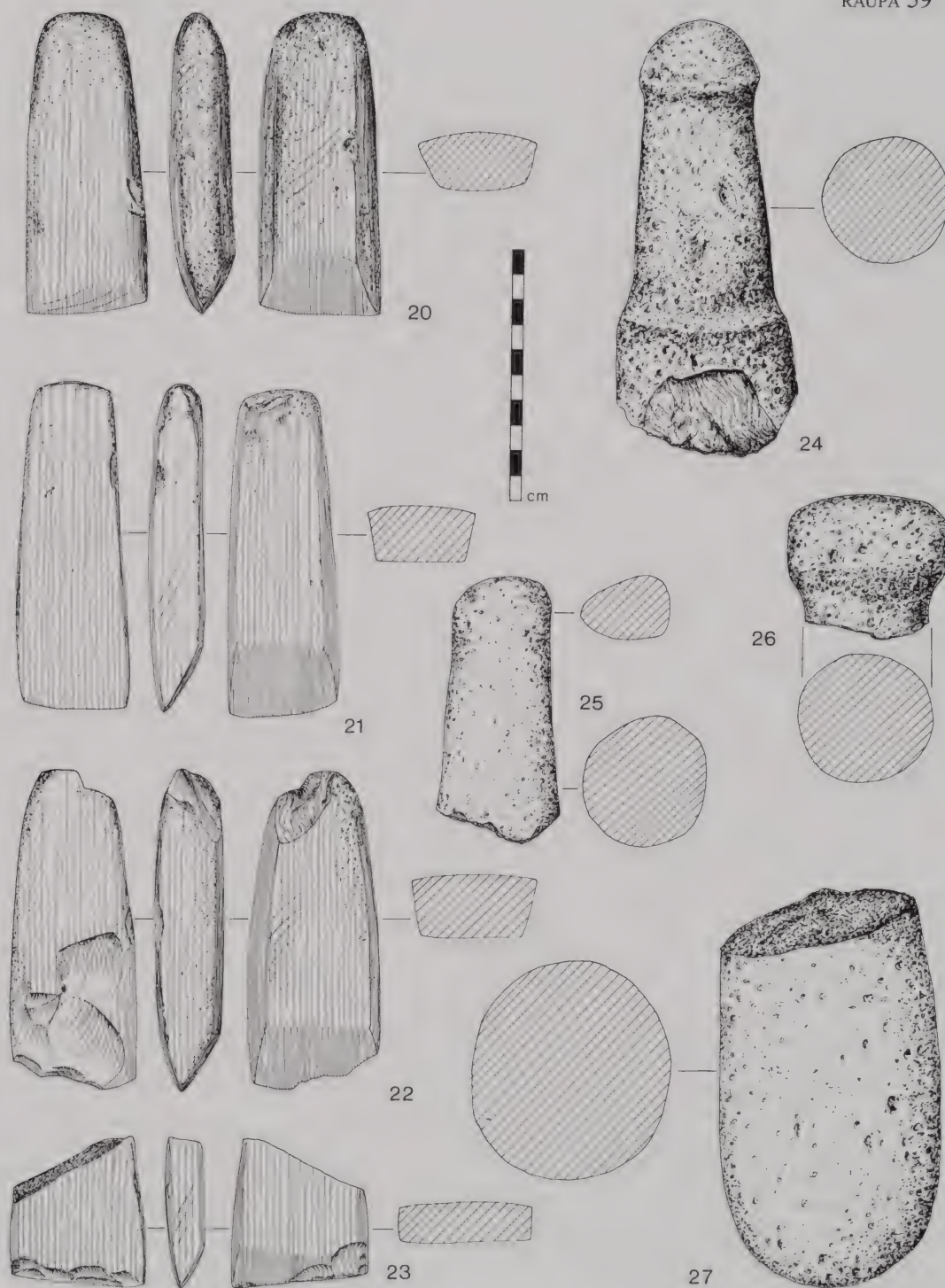
Adzes

Two adzes and several polished adze fragments were found in Areas VII, IX, X and XI. Also, one adze was found between the excavations and the river bank. These finds bring to eight the number of complete adzes or substantial pieces found in the 1987 and 1988 seasons.

A complete well-finished adze was found at the midden layer surface in Area IX, at the boundary of metre squares K9 and K10 (Fig. 20). The raw material is a fine-grained green greywacke with small black inclusions - sometimes called 'chipwacke' (Schofield 1967). The length is 118 mm, the blade width 48 mm and the depth 26 mm. The adze has a rounded sub-triangular cross-section. The bevel and most of the front is polished, with the sides, back and butt end of the front highly polished over hammer-dressing. The undamaged blade clearly was not used after last being ground and polished.

In the metre square E5 on the surface of Layer 3 was a second adze (Fig. 22). Again it is made of fine-grained green greywacke and is of sub-triangular cross-section, although in this case it is sharply defined at the angles. The bevel and much of the front is finished to a high polish, with the remainder lightly polished over hammer-dressing. One side of the adze back has not been polished at all but finished by fine hammer-dressing only. The adze has been substantially damaged at both ends and only *ca.* 20-25% of the blade remains. It measures 128 x 54 x 27 mm.

Outside the excavated area, 5.7 m east of the south-east corner of Area VII, a complete adze was found in disturbed silt and mine tailings, left after this part of the Raupa site was cleared by road grader prior to excavation (Fig. 21). The stone is green greywacke with black inclusions. The length is 130 mm, blade width 43 mm and depth 24 mm. It is thus



Figs 20-27. Raupa adzes and patu muka fragments. 20. Adze, Area IX K9-10. 21. Adze, surface find. 22. Adze, Area XI E5. 23. Adze blade, Area VI J5. 24. Patu muka handle, Area VI C5. 25. Patu muka handle Area VI E5. 26. Patu muka handle end, Area X E8. 27. End of patu muka, Area VII J2.

the narrowest of all Raupa adzes for which measurements are possible. The cross-section is rectangular and sharply defined. It is completely polished except for small areas at the butt, and there is haft polish on the butt end. The blade shows signs of heavy wear.

Five polished adze fragments were found, all of green greywacke. The largest (metre square F1, surface) was a 64 mm long piece of two sides of a rectangular cross-sectioned adze, polished over hammer-dressing. Found in the disturbed surface silt in Area IX was a 22 mm long fragment of a highly polished rectangular adze in very fine-grained greywacke. Also highly polished was a 24 x 16 mm fragment of a sub-triangular adze from square A3, surface layer. Another probably sub-triangular and highly polished adze is represented by a tiny fragment only 14 x 9 mm from square L7, Layer 1. From the square J2 surface came a 12 x 10 mm fragment of a polished adze in green greywacke.

Patu muka

In Area VII J2 was found the beating end of a massive flax beater made of pale grey andesite (Fig. 27). Some original surface shows that the tool was fashioned from an elongated water-rolled stone.

In the upper fill layer in Area X, metre square E8, was found the butt end of a patu muka made of coarse grey andesite (Fig. 26). This brings to six the flax pounders found during the two years work at Raupa, four butts (handles), and two beating ends.

The Area X find is unusual in that it is very much larger and more circular than the other three butts. The end is *ca.* 64 mm in diameter whereas the others are oval in shape 48 x 37 mm, 47 x 42 mm and 39 x 32 mm respectively. The well-formed knob reduces to a slightly oval grip of *ca.* 49 x 53 mm. As with other patu muka recovered at Raupa the particular form is well represented among Oruarangi material in the Auckland Museum.

Patu onewa

Part of the handle of a beautifully finished patu onewa (Fig. 28) was found at the west side of metre square A8. In the 1987 excavation in adjacent Area III were found two blade pieces of the same patu so that it was anticipated that more would be found in the next season's work. Not all of it was found however and just where the remainder came to rest is not known. The raw material is grey/green Waiheke Group greywacke.

In the 1987 excavation report it was suggested that the patu may have been heat fractured during the fire which burned down the large house (Prickett 1990:118). One of the blade pieces showed signs of heat damage. The missing pieces, clearly some distance away, add weight to an alternative explanation, which is that the weapon was deliberately destroyed or, more likely, broken during fighting. The large blade piece has been in a fire and there is no crushed edge nor were small fragments found which would positively tell of the destructive blow; nonetheless, breakage during conflict must be a likely explanation.

Nephrite

In Areas VII, IX-XI were found seven artefacts or worked fragments of nephrite. A range of artefact types is included.

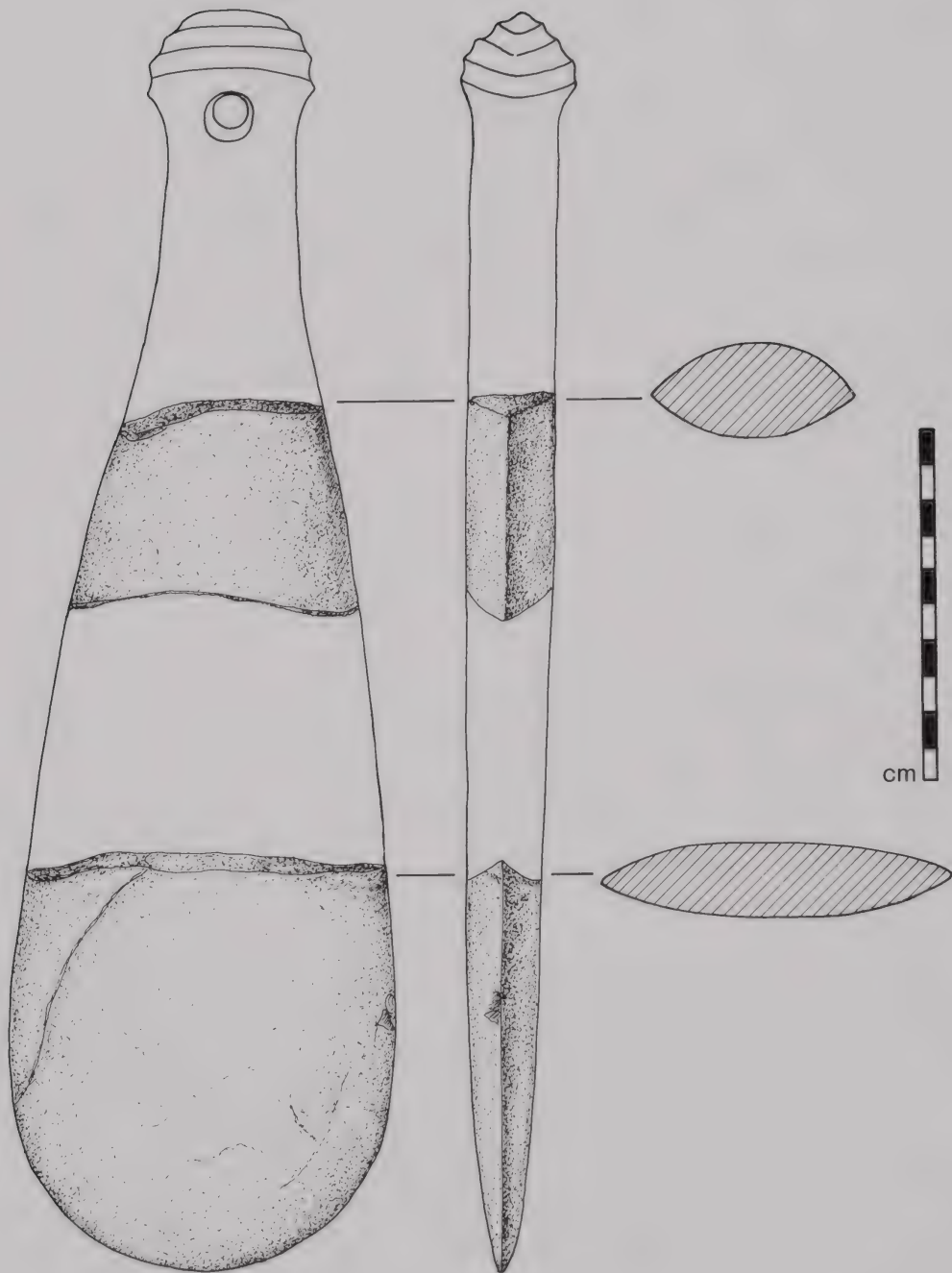
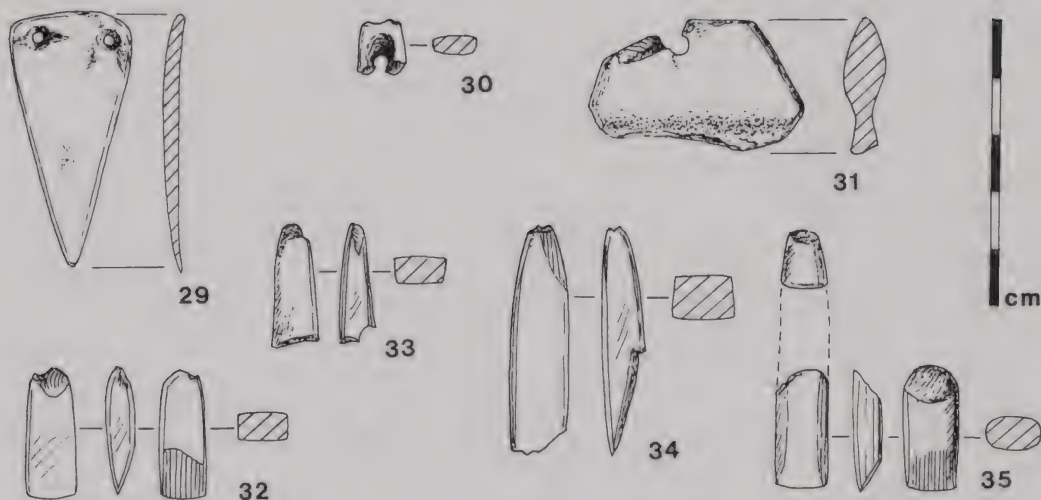


Fig. 28. Patu onewa found in three pieces: in 1987 (Area III; see Prickett 1990:118, 146); and 1988 (Area X A8), the upper (handle) fragment.



Figs 29-35. Nephrite artefacts from Raupa. 29. Pendant, Area XI A5. 30. Pendant fragment, Area VII II. 31. Pendant fragment, Area X H9. 32. Chisel, Area X C8. 33. Chisel butt fragment, Area VII A3. 34. Chisel butt fragment, Area VI J5. 35. Butt and blade fragments from single chisel, Area VII G2.

The most important item, at least partly because it is still complete among all the fragments is a small pounamu pendant (Fig. 29). It was found in square A5 close to the western side of the excavation in the upper occupation level. The pendant is triangular in shape, 44 x 21 mm and 4 mm in maximum thickness, highly polished front and back. The rear is more or less flat but the front is attractively curved to show off the high quality lustrous emerald green stone to best advantage. Two suspension holes show this was a necklace unit and not an ear pendant, as indeed the shape suggests. One hole has been grooved front and back before drilling while the other has been drilled right through.

Among surface material in metre square H9 was found a second broken item, in all probability being fashioned as a pendant (Fig. 31). It measures 37 x 22 x 7 mm, has been extensively polished on both sides and at one squared-off end, and has been grooved front and back where a break has occurred. The very broad groove suggests that it was part of the fashioning of a once larger pendant and not necessarily for deliberate breaking at this point, a suggestion endorsed by the very rough break which has occurred. If this was the case then an unknown amount of the pendant has been lost from below the groove; it is possible that the item was to have been an adze-shaped pendant, with a decorative groove such as that illustrated by Skinner (1974:91). The suspension hole is drilled from one side only probably to present the other side to the viewer when worn. The mid-green nephrite is of comparatively poor quality.

A third pendant is represented by a drilled fragment recovered from surface layers in metre square II (Fig. 30). This was an ear pendant of the kuru (see Law 1980), or possibly kapeu (Te Rangi Hiroa 1949:286), form. The broken out suspension hole is worn smooth indicating much use. The stone is high quality dark green.

The remaining four pieces of nephrite probably represent three chisels. Outstanding is a complete example from metre square C8 which is only 22 mm in length and 9 mm across the blade (Fig. 32). The maximum depth is 5 mm. This tiny chisel is highly polished on all four sharply rectangular sides. The raw material is a dark green nephrite with black and white veins. On the bevel and back of the blade can be seen use marks, those on the bevel interestingly being 10-15 degrees from the length of the chisel showing that the chisel was habitually driven into the wood at that angle, the right corner first.

Two fragments from metre square G2 probably belong to the same chisel (Fig. 35). The blade end is 22 mm long with a flat front and rear and rounded sides 10 x 6 mm. The butt fragment is only 10 x 8 mm and appears to have been broken both ends. The raw material of both items is an identical high quality mid-green nephrite and both pieces are highly polished to the same appearance. The complete item may have been *ca.* 50 mm in length.

Very different nephrite is used for the last piece, a chisel butt found in square A3, among surface material (Fig. 33). The stone is an opaque olive green jade of high quality. The length is 23 mm and the cross-section only 10 x 7 mm. There is a high degree of overall polish and some haft polish on the butt. Again the complete chisel may have been *ca.* 50 mm in length.

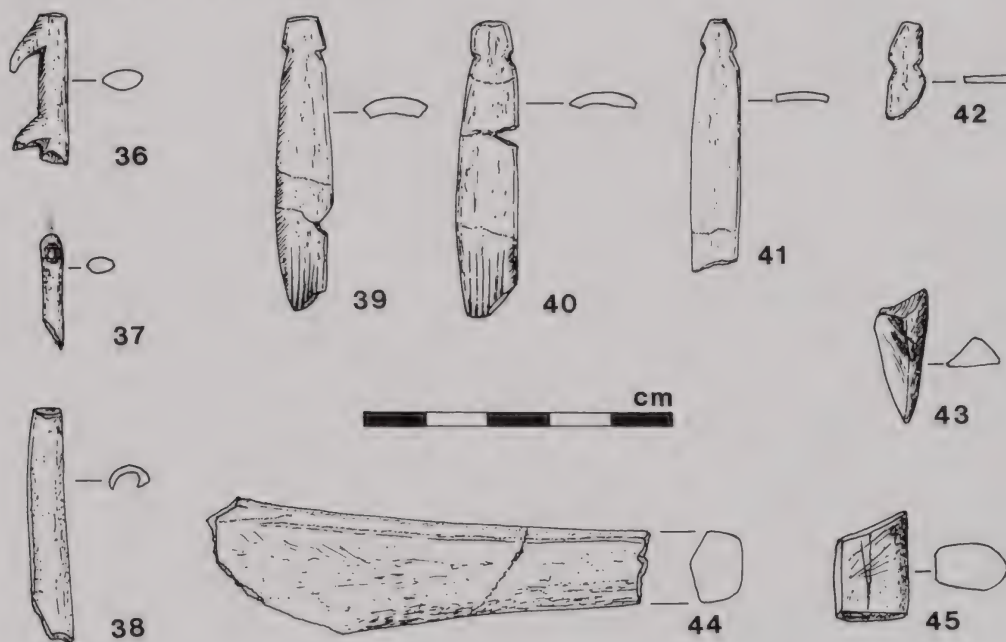
Bone artefacts

Bone artefacts from this part of the Raupa site include several fragmentary tattoo chisels, bird spear and needle fragments and pieces of sawn and ground bone. The 24 mm long piece of bird spear was found among midden waste in metre square K9 near the south-east corner of the excavated area (Fig. 36). It has two large projecting barbs, unlike the bird spear fragment with small barbs found in 1987 (Prickett 1990:147) but similar to a complete specimen from Oruarangi (Fisher 1934:Fig. 74). The raw material is mammal bone. From square G3, Layer 3, came a bone needle fragment 18 mm in length and 3-4 mm diameter (Fig. 37).

The remains of four tattoo chisels were found together in metre square F5. These fragile items were damaged during excavation, although three have been substantially re-assembled from pieces (Figs 39-42). Two nearly complete chisels measure 46 x 9 mm (Fig. 39), and 48 x 10 mm (Fig. 40) respectively. Another 42 x 9 mm item shows only a small part of grooves scored to form teeth at the working end (Fig. 41). The complete item might have been 8-10 mm longer. Five further fragments include one lashing end, 16 x 6 mm (Fig. 42), notched for attachment, and two grooved fragments. It is not clear if these pieces belong to one or more chisels. Of interest is the fact that all four Raupa chisels belong to Fisher's (1934:284-285) notched type, like only seven of 75 complete items from Oruarangi. One more Raupa chisel is represented by the plain butt found in 1987 (Prickett 1990:Fig. 49), belonging to Fisher's Type C which constitutes 54 of the Oruarangi group.

There are four pieces of sawn and ground bone, all from Area IX. A 36 mm long split half of bird bone (Fig. 38) assigned only to surface silt, has been sawn at both ends, possibly to make a toggle. In the midden layer, metre square M10, was found a piece of mammal long bone 70 mm in length, 12-20 mm wide and 6 mm deep which had been ground down

both sides (Fig. 44). A cut has been started 2-4 mm in from one long side on the outer surface of the bone, perhaps in preparation of a bone needle. Also from the Layer 3 midden (metre square L10) was a fragment of similar bone sawn and snapped at both ends, polished on the other four sides, and scored both ways on the smooth outer surface of the bone (Fig. 45). It measures only 18 x 12 x 8 mm and must surely be waste. The last fragment was found above the midden layer in square M6 (Fig. 43). It measures only 18 x 8 x 3 mm with two sides and a straight edge fashioned by polishing and the remains of three shallow parallel grooves on one side. It is likely this fragment results from a break during manufacture and was never part of a finished item.



Figs 36-45. Bone artefacts from Raupa. 36. Bird spear fragment, Area IX K9. 37. Needle fragment, Area VII G3. 38. Sawn and split bird bone (toggle?), Area IX. 39-42. Tattoo chisel fragments, Area XI F5. 43. Sawn fragment, Area IX M6. 44. Ground mammal bone, Area IX M10. 45. Sawn fragment, Area IX L10.

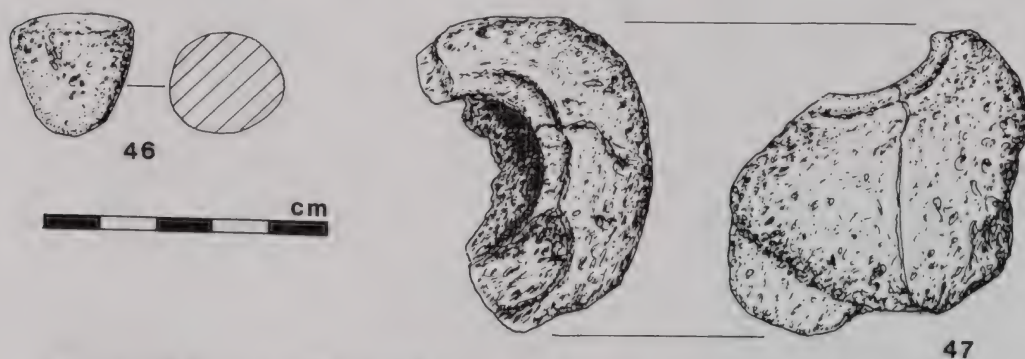
Pumice

From the Layer 1 surface, metre square G1, came a cone-shaped piece of pumice 22 mm high and 22 x 20 mm across the flat base (Fig. 46). It is faceted all around the cone through rubbing, as well as being polished flat at the base. It is possible this item was formed in polishing or burnishing wood or bone artefacts; more likely, however, it was itself the object of manufacture, the only suggestion coming readily to mind being that of a gourd stopper.

Part of a pumice bowl was found in two pieces (which do not fit together) in square E6, Layer 1. What remains suggests a bowl *ca.* 55 mm in external diameter with sides slightly squared off, and 45-50 mm in height (Fig. 47). Internal measurements are *ca.* 25

mm diameter and 28 mm depth, almost identical to that of a bowl found nearby in Area IV in 1987 (Prickett 1990:129, 147). A groove around the rim may have been intended to seat a top to the container. From squares E-D2 came a natural pumice cobble *ca.* 100 x 85 x 55 mm in size with 6-8 mm deep depressions in each side *ca.* 30 mm in diameter (Fig. 59). This item may have been tried out for bowl manufacture, the raw material in all probability proving too coarse and angular. Four fragments of a bowl which may have been 45-50 mm in internal diameter were found in metre square B4.

An unusual raw material was a piece of finely banded obsidian pumice from Mayor Island from metre square HI. A natural slab *ca.* 100 x 55 x 27 mm has evidence of use as a hoanga on one large surface. From loose surface material in square D3 came two fitting fragments of more usual pumice *ca.* 60 x 45 x 25 mm in size. A flat surface may possibly have been the result of use for grinding. Other pumice fragments with indications of use in grinding or polishing came from squares H2, F2, DI and E5.



Figs 46-47. Pumice artefacts. 46. Cone-shaped piece (gourd stopper?) Area VII G1. 47. Fragments of pumice bowl (broken during excavation), Area XI E6. Another small rim piece is not shown.

Drillpoint

From the disturbed surface of metre square D3 came a fine-grained purple red chert drillpoint, unusual in having all three edges ground close to the point.

Hoanga

In Areas VII, IX-XI were found six angular hoanga fragments which had been used for grinding polished stone tools. Among loose material on the surface of square F1 was a much used fine-grained siliceous quartz sandstone hoanga displaying five highly polished facets (Fig. 52). One of the facets was ground into a dish shape. Elsewhere two sharp edges have been grooved through use as a cutter or saw. The stone measures *ca.* 60 x 45 x 40 mm and appears substantially complete. A similar hoanga from nearby square JI also found in disturbed surface material was again used on five surfaces (Fig. 53). The raw material is a coarse quartz sandstone. Three of the grinding surfaces are strongly dished. On one of them are traces of kokowai and a 30 mm long groove, the result of sharpening a point or blade.

Other hoanga items were only fragmentary. A 98 x 78 mm natural flat surface of an andesite block has been used for kokowai grinding (Fig. 51). Once again it was recovered from among loose surface material, in square E5. Another natural slab of andesite 25 mm through has been ground very smooth on one side where striations can be seen under kokowai stains (Fig. 49). Kokowai can also be seen in two other places on the stone. It comes from among surface debris in F1. A piece of identical material from square D3 can be fitted to the F1 stone to make a total polishing surface 120 x 80 mm. The break is not fresh. Also from square D3 among surface material is a fragment of similar slab andesite 30 mm deep (Fig. 50). One surface may have been ground.

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Figs 48-53. Hoanga. 48. Andesite slab, Area VI A-B6. 49. Fragment of andesite slab, Area VII F1. 50. Fragment of andesite slab, Area VII D3. 51. Fragment of andesite slab, Area XI E5. 52. Fine-grained sandstone, Area VII F1. 53. Coarse-grained sandstone, Area VII J1.

Kokowai

As in other parts of the Raupa site ochre was abundant throughout Areas VII, IX-XI. It was found as tiny fragments of soft processed kokowai and also as occasional more substantial pieces of raw material. A piece of raw material weighing 27.4 g from among surface silt in Area IX shows both soft brick red material and the brittle magenta coloured volcanic rock from which it has weathered.

Several pieces of kokowai show evidence of having been worked. From surface material, metre square C2, came a 16.9 g piece of soft brick red raw material. A polished scoop on one side indicates either direct use of the dry red colouring on an object or the grinding off of fine powder for mixing into paint, commonly with shark oil. From square L7 came a similar piece only 4.4 g, which also had been polished into a slight scoop and with a small area of polish also apparent on another side. A fourth piece, from square E2, took the form of the end of a thin 'stick' of raw material, weighing 11.9 g, polished through use except where it has been snapped off the originally larger piece. The raw material is high quality brick red haematite. Also from E2 were recovered four fragments of total weight 5.0 g, broken during excavation from a piece of soft, very fine, deep red haematite no more than 20 mm in length. One side of the piece was dished from use, while other surfaces showed evidence of rubbing. A square G9 fragment only 20 mm in its greatest dimension is grooved on one side either through use as a tool or as the object of attention.

Rounded water-rolled stones stained with ochre have clearly been used for grinding kokowai (Figs 54-58). The largest of these was a 150 x 120 x 60 mm (Fig. 57), and the smallest, a cylindrical pebble *ca.* 70 mm in length and 32 mm diameter (Fig. 55). The latter was smeared with kokowai down the sides, while the two ends showed the chatter marks of use as a knapping stone; the raw material is greywacke. Another stone is smeared with both kokowai and black pigment.

From metre square H10, Level I, came a very large piece of yellow ochre raw material weighing almost 5 kg. There is no sign of it having been used, but clearly it has been brought to the site for use, probably from somewhere in the adjacent ranges as almost certainly the red haematite raw material will have been as well.

Obsidian

A total of 1440 pieces of obsidian weighing 7483.3 g were recovered from Areas VII, IX, X and XI. Material was assigned during excavation to "surface", "Layer 1", "Layer 2" and "Layer 3". Surface, Layer 1 and 2 obsidian all belongs to the second occupation period, contemporary with the nearby house. The few pieces recorded as coming from Layer 3 total less than 20 g, and for the purposes of analysis are included here with Level II material, to which they may in fact belong. Obsidian distribution is given in Table 3.

Obsidian density varied greatly throughout the 99 m² excavated in this part of the Raupa site, from 146.1 g per m² in Area XI, 94.8 g per m² in VII, and 34.1 g per m² in X, to only 7.4 g per m² in Area IX. From only 20 closely grouped metre squares in Areas VII and XI came 4552.4 g, more than 60% of the total. Twenty-eight percent came from just

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Figs 54-59. Stones used in kokowai grinding, and pumice piece. 54-58. Kokowai grinding stones. 54. Area XI E4. 55. Area XI D5. 56. Area XI F5. 57. Area XI D4. 58. Not accurately located within Areas VII, IX-XI. 59. Worked piece of pumice, Area VII D-E2.

6 m². These two figures represent 227.6 g per m² and 350.4 g per m² respectively. In contrast, at the south-east of the excavated area in Areas IX and X just 304.3 g were recovered from 30 m², an average of little more than 10 g per m².

Some very large pieces include a 168.1 g flake of green obsidian with possible use damage from square C4. From D6 came a 139.7 g core of green flow-banded material. Other pieces of more than 100 g were a 117.1 g flake from C3, and two shatter pieces from F4, 108.4 and 101.8 g respectively. Flakes of more than 80 g were found in squares A1, D1, and E5 and 6. All these large pieces come from that part of Areas VII and XI where the concentration of obsidian is greatest.

It is tempting to relate the large quantity of obsidian pieces in the area bounded by squares C1-5 and F1-5 to the several massive water-rolled boulders found in this part of the site. Sharp pieces of obsidian were essential in cutting flax, and the boulders may well have been used as anvils for pounding scraped flax to make up the fine muka fibre used in cloak making. It is not impossible that the burnt bowl in this area also had been used in the manufacturing process, for soaking or dyeing the fibre. Consideration of the overall obsidian distribution from the 1987 and 1988 excavations is included in the discussion section below.

As in other parts of the Raupa site most obsidian pieces are very small. Overall, 40.8% are less than 1 g with another 35.3% of 1-5 g. Throughout the four areas (VII, IX, X and XI) obsidian pieces of 0-5 g consistently made up 75-79% of the total. Ninety pieces of more than 20 g weight made up only 6.26% of the obsidian count but almost half (47.9%) of the total weight.

Over 94% of all obsidian by weight was green in colour and almost certainly Mayor Island in origin. Of the remainder, 55 pieces weighing 235.5 g (3.15%) were olive grey in colour and identified as having come from the Waimata stream, Waihi, source (Moore and Coster 1989). Forty-one pieces of 194.9 g (2.6% of total) were grey obsidian which may have originated on the Coromandel Peninsula, on Great Barrier Island or, possibly, in the central North Island. Grey and Waihi obsidians share with the collection as a whole the large preponderance of very small pieces. Among grey items only one weighs more than 20 g (25.3 g) and only eight others weigh more than 10 g. Three Waihi pieces are 43.1 g, 30.1 g, 25.0 g and 24.3 g respectively, with another two pieces more than 10 g.

Of some interest is the fact that ten pieces of scarce Waihi obsidian include areas of original cortex, as do five pieces of pale grey material. The percentages are 18% of all Waihi pieces, and 12% of grey. In contrast only 12 pieces of green obsidian included cortex, that is, less than 1%. Waihi and grey material was presumably collected as relatively small water-rolled cobbles and pebbles. An example is a 24.3 g item from square A9 which includes the greater part of a water-rolled stone of Waihi obsidian. Mayor Island material on the other hand was, and still is, available as substantial pieces originating in large flows.

The 1440 pieces of obsidian can be roughly divided into flake pieces, shatter pieces and cores. Approximately 60% of all pieces are struck flakes, 38.5% are shatter pieces and the remainder cores or blocks of obsidian. Core pieces are mostly small remnants of once larger pieces from which sharp-edged flakes have been struck. An exception well suited to further flake production is a 139.7 g core or block of green flow-banded obsidian from metre

Table 3. Summary of obsidian distribution in Areas VII, IX-XI; of a total of 1440 pieces weighing 7483.3 g. Refer to Fig. 14 for metre square locations.

Sq.	No.	Wt (g)	Sq.	No.	Wt (g)
A1	2	92.4	A2	1	4.1
B1	1	0.5	B2	8	24.7
C1	7	36.8	C2	40	212.8
D1	13	200.2	D2	25	203.6
E1	21	68.5	E2	23	116.6
F1	33	111.8	F2	40	152.0
G1	28	119.8	G2	30	47.2
H1	24	73.8	H2	7	5.9
I1	34	83.1	I2	22	94.1
J1	13	53.8	J2	23	75.8
A3	7	23.4	A4	17	109.6
B3	10	49.0	B4	30	225.4
C3	21	358.1	C4	34	442.4
D3	29	135.8	D4	29	199.2
E3	17	64.1	E4	35	357.9
F3	11	37.7	F4	28	408.3
G3	37	218.1			
H3	30	97.0			
I3	13	41.6			
J3	16	42.0			
A5	17	65.6	A6	9	37.1
B5	47	161.6	B6	9	40.4
C5	25	75.1	C6	22	31.4
D5	75	213.1	D6	80	281.2
E5	30	254.4	E6	17	24.1
F5	11	152.0	F6	2	7.2
			K6	1	3.4
			L6	1	13.1
			M6	7	7.1
A7	14	56.3	A8	8	24.1
B7	14	89.0	B8	1	3.0
C7	10	32.8	C8	10	88.6
D7	12	75.7	D8	9	29.8
E7	8	21.4	E8	13	32.9
F7	26	144.6	F8	19	34.5
			G8	4	44.8
			H8	5	22.5
			I8	2	12.6
			J8	19	55.6
K7			K8		
L7	2	10.5	L8	3	8.9
M7	1	1.7	M8		
A9	2	5.3	A10	6	28.7
B9	3	5.2	B10		
C9	10	108.0	C10	6	32.1
D9	10	94.1	D10	12	48.1
E9	14	50.6	E10	7	24.9
F9	5	29.2	F10		
G9	11	72.1	G10	1	1.8
H9	7	54.0	H10	8	21.1

Table 3 (cont.)

Sq.	No.	Wt (g)	Sq.	No.	Wt (g)
I9	4	42.6	I10		
J9	14	42.1	J10	12	13.4
K9	2	2.1	K10	1	3.9
L9	2	0.7	L10	1	7.0
M9	1	0.9	M10	3	31.4

square D6. From square F2 came a 50.7 g core remnant with battered edges, again of flow-banded green material. Other core remnants weigh as little as 2.8 g.

Among flakes and shatter pieces approximately 30% has evidence of use in the form of edge-damage. Most edge-damage shows where very small flakes have been taken off sharp edges in the course of use in cutting or scraping tasks. A small number of pieces are notched as if they have been used as spoke shaves. More pieces have battered or crushed margins. One unusual 3.9 g green flake from square D4 has evidence of grinding on one edge with some kokowai adhering. Interestingly, struck flakes and shatter pieces both have edge-damage, showing that when a sharp edge was needed the users were not particular about how this was achieved.

An interesting piece from square G9 is a 39.9 g core showing very clearly the method of producing small flakes from the *ca.* 45 x 35 mm base. At the opposite side is poor quality stone from the original flow margin. A 32.7 g piece from square A9 illustrates a very different style of flake production, this time from the 32 mm long sides of a core with well prepared platforms at each end. Yet another method of flake production can be seen on a 37.2 g piece from E5. This item shows flake production from all surfaces with striking platforms used as they became available by the removal of flakes from adjacent facets. Some edges are crushed from use for knapping or hammering after flake production finished.

Flakes and shatter pieces alike have a range of shapes. Unusual is a broad 47.3 g flake from square A8, *ca.* 90 x 50 mm and 15 mm deep at the water-rolled striking platform. The long and well-shaped knife edge shows slight damage through use. In contrast is a 9.5 g blade-like flake 58 mm in length and 24 mm maximum width (square B8). Considerable edge damage can be seen along a concave side but none on the other, convex, side.

Chert

Throughout the 99 m² of Areas VII, IX, X and XI were found 529 pieces of imported stone classified as chert, weighing a total of 8699.8 g. The weight represents a high density of chert compared with other parts of the Raupa site. In the adjacent Areas III and IV, for example, were 33 g and 69.5 g per square metre respectively whereas from the area now under discussion came 84.9 g of chert per square metre. From Areas VII and XI alone came more than 100 g per square metre. Details of chert distribution are given in Table 4.

Chert, like obsidian, is a fine-grained rock from which sharp-edged knives were struck. The predominant material, as elsewhere in the Raupa site, is white or cream coloured with pink, red, yellow and sometimes grey or brown. Cortex is usually dark red or brown. This chert may be coarse or fine-grained and varies greatly in its suitability for flake production.

Table 4. Summary of chert distribution in Areas VII, IX-XI; of a total of 496 pieces weighing 8339.5 g. Refer to Fig. 14 for metre square locations.

Sq.	No.	Wt (g)	Sq.	No.	Wt (g)
A1			A2		
B1	1	206.0	B2		
C1	2	1.4	C2	5	29.9
D1	5	9.4	D2	16	370.0
E1	14	140.6	E2	5	3.9
F1	3	43.1	F2	13	262.9
G1	14	115.6	G2	10	372.9
H1	4	52.8	H2	3	29.9
I1	8	38.3	I2	1	775.3
J1	3	26.2	J2	8	8.3
A3	3	0.7	A4	1	1.4
B3	2	5.3	B4	5	6.1
C3	6	164.2	C4	5	70.2
D3	12	617.0	D4	13	322.8
E3	3	50.2	E4	17	99.7
F3	2	3.5	F4	15	237.0
G3	10	170.3			
H3	8	101.3			
I3	5	198.3	A6	8	8.5
J3	4	11.0	B6	4	140.4
A5	5	36.1	C6	9	39.2
B5	7	55.9	D6	10	53.9
C5			E6	4	1.8
D5	9	12.2	F6	1	6.2
E5	9	487.3	K6	1	1.9
F5	3	93.2	L6		
			M6	2	5.9
A7	9	131.4	A8	7	702.5
B7	6	364.5	B8	6	37.8
C7	10	258.5	C8	10	34.4
D7	13	56.6	D8	18	68.1
E7	2	3.5	E8	2	4.8
F7	10	89.4	F8	1	12.3
			G8	1	5.3
			H8	6	43.3
			I8	1	0.9
			J8	3	11.3
K7	3	27.7	K8	5	38.5
L7			L8	1	1.8
M7			M8		
A9	14	179.0	A10	4	23.2
B9	6	32.2	B10	6	19.0
C9	5	95.8	C10	8	8.5
D9	5	68.1	D10	4	140.4
E9	9	358.0	E10	9	39.2
F9	2	5.2	F10	10	53.9
G9	2	4.8	G10	4	1.8
H9	3	8.6	H10	1	6.2

Table 4 (cont.)

Sq.	No.	Wt (g)	Sq.	No.	Wt (g)
I9	7	57.4	I10	2	3.5
J9			J10	10	89.4
K9	3	74.6	K10	1	2.5
L9			L10	1	4.3
M9	1	3.6	M10		

Some very fine-grained chalcedonic material was commonly white or brown. Rare pieces of jasper were mostly small.

Some pieces of chert show cortex that has been severely battered by water-rolling. Other cortex shows no sign of having been water-rolled, the material presumably having originated in outcrops. It is assumed that all the chert came from the nearby Coromandel Ranges where it is common in variety geological contexts.

Like obsidian, the major concentration is in the area confined by squares C1-5 and G1-5, with a minor concentration at the south and west of Areas X and XI. Only 20 m² of the 99 m² total have more than 76% of the total. Like obsidian, the very marked concentration of chert in Areas VII and XI suggests this was a working area. In this case there is evidence of considerable stone working, including the preparation of chert cores and flake production. Chert flakes may also have been used in fibre preparation, as was suggested for the obsidian concentration; again this may be associated with the massive water-rolled boulders here which arguably were brought in as anvils for use in muka production.

The concentration of chert weight in only a few metre squares depends on the presence of a small number of very large pieces. Thus only twenty pieces of more than 100 g each make up 55% of the total weight. One of these pieces, from metre square I2, is of a fine-grained cream and pale brown chert weighing 775.3 g (Fig. 60). The stone has had almost all cortex removed and takes the form of a half-sphere core from which flakes have already been removed and which is well prepared for further flake production. Another large piece weighing 415.2 g (square D3) is of coarser cream material with some red-brown cortex (Fig. 61). Again it has been extensively used for flake production. An unusual piece of chert from square G2 showed signs of extensive use as a hammerstone (Fig. 71). The raw material is cream with orange veins. The piece weighs 118.3 g and measures *ca.* 40 x 40 x 40 mm. Other large pieces of chert are illustrated in Figs 62-70 and described in Table 5.

Of the 529 chert pieces 54% are shatter pieces, almost all unused waste, and *ca.* 42% are struck flakes. Edge-damage as a result of use could be seen on *ca.* 10% of pieces. The remaining 4% are blocks or chunks of rock or cores modified to greater or lesser extent for flake production.

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Figs 60-71. Major chert pieces. 60. Area VII I2. 61. Area VII D3. 62. Area X. 63. Area X A8. 64. Area VII C3. 65. Area VII I3. 66. Area XI C7. 67. Area XI B7. 68. Area VI G3. 69. Area VII B1. 70. Area X A8. 71. Hammerstone, Area VII G2.

Other stone

Other stone imported to the Raupa site includes greywacke, petrified wood, quartz and a wide range of hangi stone raw materials, most commonly greywacke and andesite but including also basalt, red (altered) rhyolite, indurated rhyolite and indurated mudstone. Throughout the site hangi stones made up the overwhelming bulk of imported stone material.

Petrified wood is of some interest because of the use of the material for lure shanks where longitudinal strength was required. Twenty pieces were found in the 99 m², of which two made up 67% of the total 369.6 g weight. Three or four pieces are long enough for use as lure shanks although there is no sign of their having been worked on. A 45 x 20 x 6 mm piece (square I9), broken off a larger block, has evidence of grinding use on a narrow curved surface.

A 958 g piece of water-rolled greywacke cobble from square F3 has had two large flakes removed from one end. The two concave edges formed as a result show considerable edge-damage possibly through use in the manner of a spoke-shave.

Andesite occurred as fragmentary hangi stones, and as flaggy slabs, occasionally used as hoanga which have already been discussed. It is likely that all the andesite slabs at Raupa, whether or not they have evidence of use, were imported for use as hoanga. An unused piece from square B5 shows signs of having been deliberately split to present a flat grinding surface.

The largest piece of quartz, from square K9, weighs 70.2 g and takes the form of an angular flake with a notch *ca.* 25 mm wide and 10 mm deep on one edge, showing signs of intensive use by its very crushed appearance. Other small pieces of quartz were imported possibly as an abrasive to aid the process of grinding stone tools.

Kauri gum

Four lumps of kauri gum were recovered. All of the 28.6 g total, excepting one tiny fragment, came from squares A2 and C2, to suggest that the distribution was not entirely accidental. The three pieces are of good quality and it is possible they were gathered as a raw material for use such as in the manufacture of tattoo pigment.

Material of European origin

Some fragmentary items of European origin came mostly from among disturbed rock flour and silt. Included were fragments of a plain white ceramic bowl (square H10), a 31 mm long copper nail (G1), and four green bottle glass pieces (E1, J2, D3 and G3). All of this material belongs to the late 19th or early 20th century, that is, after abandonment of the Raupa settlement. More interesting are a clay pipe bowl fragment, without decoration or mark, from square B8 Layer 2 and a piece of totally rusted iron of uncertain shape from a posthole (see Fig. 16) in squares D1-2. Both these items must be assumed to date from the Maori occupation of Raupa.

Table 5. Chert pieces of more than 100 g weight from Areas VII, IX, X and XI.

Metre Square	Wt(g)	Rock characteristics	Evidence of use	Fig.
B1	206.0	Fine-grained but poor flaking quality; red/brown with extensive yellow/off-white cortex	Some flakes struck off intransigent raw material	69
D2	188.8	Fine-grained off-white with grey/brown cortex	Angular struck piece with evidence of previous flaked surfaces	
F2	176.2	Uniform coarse-grained, dun-coloured stone with dark grey cortex	Flakes have been struck off this piece which may itself have been a flake	
G2	137.1	Cream and some quartz banding; comparatively coarse	Extensively flaked all around; step fractures	
G2	118.3	Variable quality white and cream chert with orange veins	Hammerstone with surface battered through use	71
I2	775.3	Fine-grained cream/brown chert of good quality throughout	Well prepared for flake production - domed core with many flakes already removed	60
C3	156.5	Orange/red/white fine-grained chert; some quartz	Large angular flake with step fractures and evidence of previous flaking on outer surface	64
D3	415.2	Coarse-grained cream material; red-brown cortex	Core extensively used for flake production	61
G3	119.7 white chert	Uniform fine-grained well-prepared platform;	Flake struck from possible edge damage	68
I3	149.8	Chalcedony quality; translucent white/ochre/red/black	Battered edges of angular flake show considerable use	65

Table 5 (cont.)

Metre Square	Wt(g)	Rock characteristics	Evidence of use	Fig.
D4	191.5	Fine-grained high-quality off-white chert with pink tinge in places and orange/red cortex	Large flake, edge-damaged through use	
F4	148.7	High quality chalcedonic chert; cream/yellow/grey with orange/red cortex	Large well-formed flake; some edge-damage through use	
E5	276.2	Coarse off-white/cream sinter	Waste block, possibly fire shattered	
B6	127.8	White translucent chalcedony water-rolled pebble; yellow cortex	Flakes removed from one end	
B7	328.8	High quality chalcedonic chert; cream/yellow/grey with orange/red cortex	Massive well-formed flake, some edge-damage through use	67
C7	158.7	High quality very fine-grained black chert with orange/red water-rolled cortex	Large well-formed flake, with good edge apparently unused	66
A8	340.9	Off-white/yellow/red with deep red cortex; mostly fine-grained but with inclusions of coarse crystalline sand	Core; flakes removed from several surfaces	63
A8	222.6	Variable rock coarse to chalcedonic quality; largely grey	Large shatter flake with previously flaked outer surfaces; no sign of use	70
A8	112.0	Material similar to above but more uniform in colour and quality	Struck flake with possible use-wear at one sharp edge	
E9	316.7	Part of large water-rolled fine-grained stone; deeply weathered red/brown cortex and yellow/blue/grey interior	May have been struck to form a core but poor fragmented quality has ruled out further use	62

AREA VIII

Area VIII was 23 m north of Area V (excavated in the 1987 season), and more than 40 m from the northernmost part (Area IV) of the extensive central excavation of the 1987-88 Raupa programme (Fig. 2). The location was chosen to be well within the innermost of the three defensive ditches identified by Phillips (1986:99), thus it was hoped that something would be learned of the use of this area, thought to be immediately behind the main defensive lines of the pa. A 5 x 5 m square was opened up, later extended by 1 m² at the east side (26 m²).

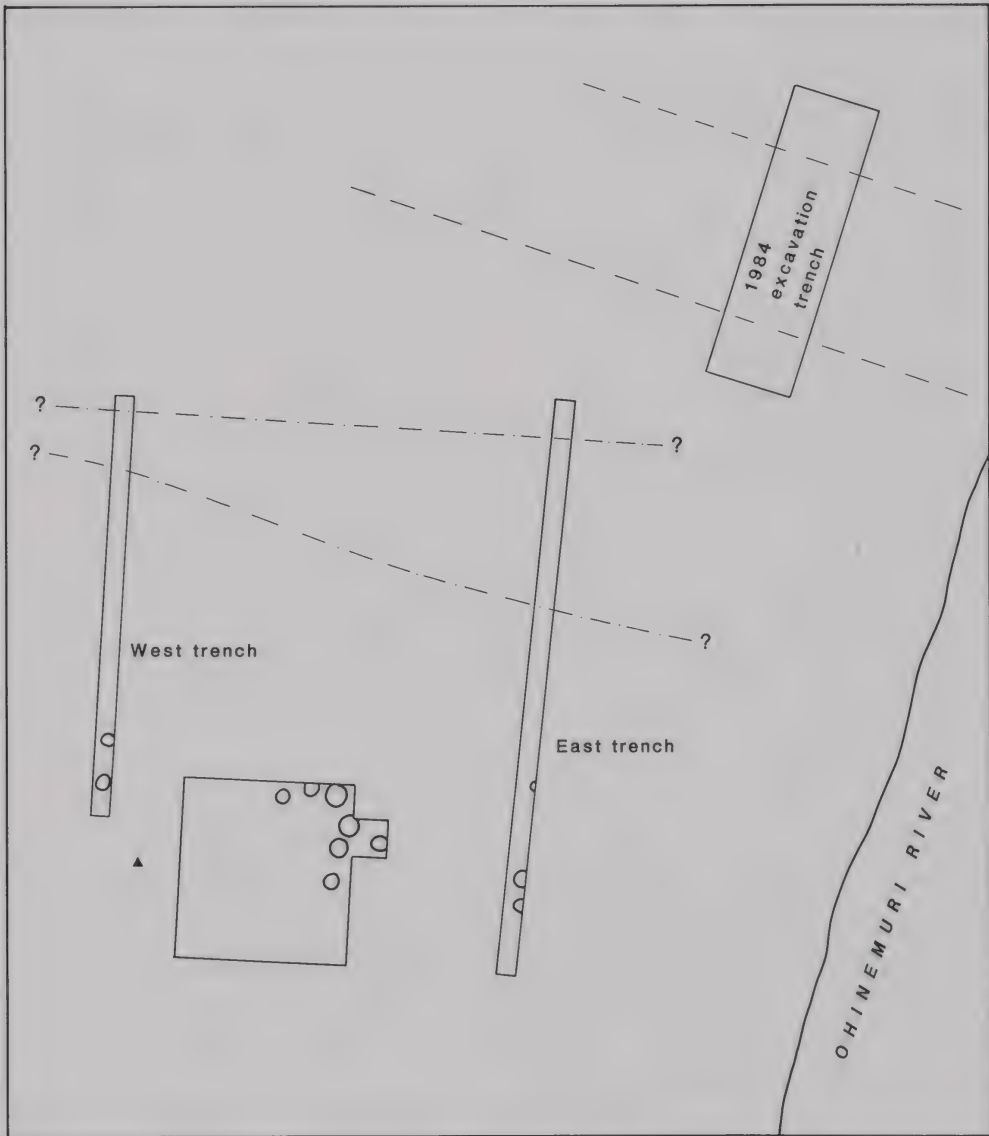
Although 15-20 m south of the inner ditch identified by Phillips (1986:99-100), archaeological evidence in the Area VIII excavation square proved to be of further defensive works and not of living space as had been anticipated. Several massive stockade postholes, some with post butts still in them, were found in the north-east part of the square. To confirm and further investigate these defences two further trenches were dug by machine east and west of the excavated square (Fig. 72).

The 5 x 5 m square

Stratigraphy was complex. In the initial 5 x 5 m square it comprised a series of thin layers dating from before and after the digging of massive holes for the stockade posts. Stratigraphic layers illustrated in Fig. 73 are as follows.

- Layer 1. Grey sandy clay with rare charcoal.
- Layer 2. Pale grey clay.
- Layer 3. Grey to black silty clay with plentiful charcoal and shell.
- Layer 4. As Layer 3 and including also redeposited brown clay lumps.
- Layer 5. Predominantly grey clay with charcoal and yellow clay lumps.
- Layer 5a. Predominantly yellow/brown clay with charcoal and some lenses of black silt loam.
- Layer 6. Pale grey clay posthole fill with rare charcoal.
- Layer 6a. Mixed yellow/brown and grey clay posthole fill with plentiful charcoal and some shell.
- Layer 7. Black clay, full of charcoal.
- Layer 7a. As Layer 7 but not so black and includes shell.
- Layer 7b. Grey clay, rare charcoal.
- Layer 8. Loose black soil with shell - mostly pipi, rare cockle (*Austrovenus stutchburyi*).
- Layer 9. Very black, charcoal rich silt loam with rare shell.
- Layer 10. Loose brown sand.
- Layer 11. Yellow-brown sandy silt; natural base of site.

The section drawing (Fig. 73) and photographs (Figs 75 and 76) show something of the history of this part of the Raupa site. Two major occupation periods can be defined. The palisade postholes have been cut through earlier material consisting of soil rich in charcoal and with some crushed shell (Layers 7, 8 and 9). There were no ovens or even oven stones here to suggest the charcoal and shell came from cooking operations in the vicinity, and the complete lack of any postholes other than those of the later stockade gives no further

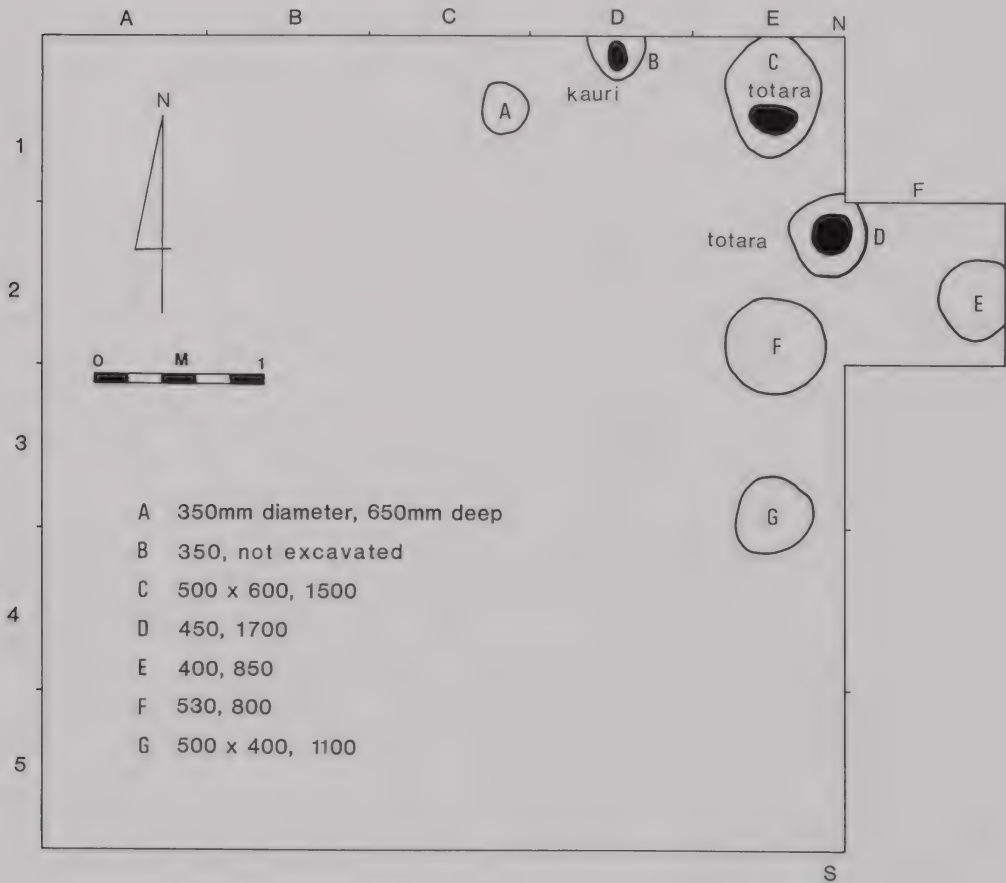
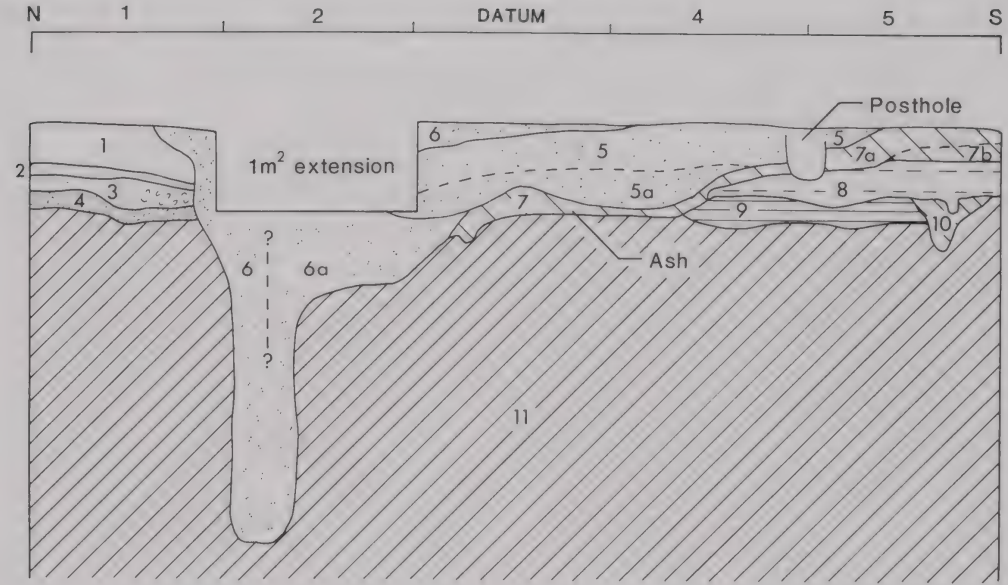


- ▲ 1984 survey peg
- Palisade post
- - - Approximate line of defensive trench
- - - Approximate line of defensive ditch
(see Phillips 1986:99)

0 m 10



Fig. 72. Plan of Area VIII showing location of two machine dug trenches and Phillips' 1984 trench.



Figs 73-74. Area VIII plan and section drawing. 73. East section. 74. Plan.

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Fig. 75. Area VIII, east section and one metre extension.

Fig. 76. Area VIII, view from west showing palisade line cut through earlier black, charcoal rich, soil.

clues as to what this part of the site was originally used for. The thick layer of black cultural soil may, in fact, be the result of deliberate dumping here to level up the area prior to construction of the defences.

Figs 73 and 75 show clearly the result of cutting through the earlier black occupation layers to put the palisade line in place. Typically the front face of the hole (facing out from the pa) has been cut vertically, while the rear face is stepped, probably to make easier both the digging of the hole and the raising of the massive post which was to occupy it. The vertical front face of the holes would strongly resist any attempt by an attacking force to pull down the palisades.

Three of the seven postholes in Area VIII had decayed post butts still in place (see Fig. 77): two were of totara and one of kauri. The measurements are given as Fig. 74 where it will be seen that six of the seven are between 800 mm and 1700 deep. These large posts almost certainly made up part of a stockade. The seventh post (A) was only set 350 mm into the ground and would not have been strong enough for a defensive post. The 1 m extension (square F2) was excavated to confirm the close set stockade line here. Further confirmation of the defences was sought in two trenches east and west of the main Area VIII excavation.

The trenches

The two trenches were dug by machine to a depth of *ca.* 2 m. Eastwards a 15 m long trench was dug on a north-south line between the main square and the river, and to the west was dug an 11 m trench.

The east trench (east) section is shown in Fig. 78. The metre squares are numbered north to south. The stratigraphy is as follows.

- Layer 1. Banded yellow rock flour, the result of late 19th and early 20th century mining operations upstream.
- Layer 2. Brown and grey mottled sandy clay with rare small pieces of charcoal.
- Layer 2a. Clay with charcoal and abundant shell.
- Layer 3. Light grey clay with rare charcoal lumps.
- Layer 4. Blue grey sandy clay, with charcoal comparatively plentiful in squares 5-8 and concentrated lens of charcoal in squares 4-5 (as shown).
- Layer 5. Brown sandy clay.
- Layer 6. Grey clay with plentiful fine charcoal.
- Layer 7. Brown sand.
- Layer 8. Black clay with dense charcoal, shell and oven stones.
- Layer 8a. As for Layer 8 but without shell.
- Layer 8b. As for Layer 8a and also including patches of light grey and brown clay.
- Layer 9. Mottled clay with charcoal,
- Layer 10. Light blue-grey clay - natural base of site.

Two outstanding features are shown in the section drawing: the first is a group of postholes near the south end of the trench, and the second a broad and shallow trench at the north end (see also Fig. 72). Two massive postholes in squares 13 and 14 are *ca.* 2 m and 1.3 m deep respectively. Very decayed and fragmentary wood from the southerly posthole was identified as totara. Three metres north of the deeper posthole is a small angled posthole filled with charcoal.

For cultural reasons, this image has been removed.
Please contact Auckland Museum for more information.

Fig. 77. Totara post butt from Area VIII palisade posthole D (see Fig. 74). Note that the bottom of the post (right) has been relatively well preserved within the watertable. Scale intervals are 250 mm.

The trench to the north of the posts is approximately 1 m deep, and three or five metres across depending upon how it is measured. It is not clear if it is artificial or natural in origin: it does not have to be artificial to have been used for defensive purposes. The depth is similar to that of the nearby ditch identified by Phillips in 1984 which was 4.4 m wide and only 1.2 m deep (see Phillips 1986:97). Also, the more sharply defined ditch in the west trench (see Fig. 79) appears to be part of the same feature which may therefore be expected to have extended all the way across the isthmus, as did the three ditches located by Phillips (1986:Fig. 7).

In the western trench there was also a ditch some metres north of massive posts which probably made up part of a stockade. Stratigraphy is depicted in Fig. 79. Layers are as follows:

- Layer 1. Rock flour and redeposited silt.
- Layer 2. Predominantly yellow rock flour and some silt made up of many fine layers.
- Layer 3. Mixed rock flour and clay.
- Layer 4. Brown sandy clay with some red-brown clay and charcoal.
- Layer 5. Thin shell layer lying directly on top of Layer 6.
- Layer 6. Dense black charcoal layer with shell in places.
- Layer 6a. Posthole fill: very dark grey silty clay with plentiful charcoal and some shell.

- Layer 7. Light grey clay mixed with some orange silty clay. Grades into Layer 7a.
 Layer 7a. Homogeneous brown clay.
 Layer 8. Grey clay and charcoal with rare shell fragments increasingly common to south.
 Layer 8a. Similar to Layer 8 but with dense shell fragments.
 Layer 9. As Layer 8 but shell abundant.
 Layer 10. A mixture of light grey, light brown and mottled clay.
 Layer 11. Brown sand.
 Layer 12. Homogenous blue-grey clay tending browner with depth.
 Layer 13. Clay and charcoal.
 Layer 14. Light blue-grey clay - natural base of site.

The remains of two posts were found in the west trench (see Fig. 72). The southward one can be seen in the section drawing, beneath Layer 6 (Fig. 79). Fragmentary timber was identified as miro (*Prumnopitys ferruginea*). The other probably extended into Layer 7 in the same way but the ditch digger removed the top part of the post hole before stratigraphical relationships could exactly be determined. Some 5 m north of the northerly post the original ground surface dips *ca.* 1.25 m into a ditch which narrows to 700 mm wide at the base. Although this is very different to the supposed defensive ditch in the eastern trench yet there are similarities. Both are about the same distance from the line of posts and both are *ca.* 1 m in depth.

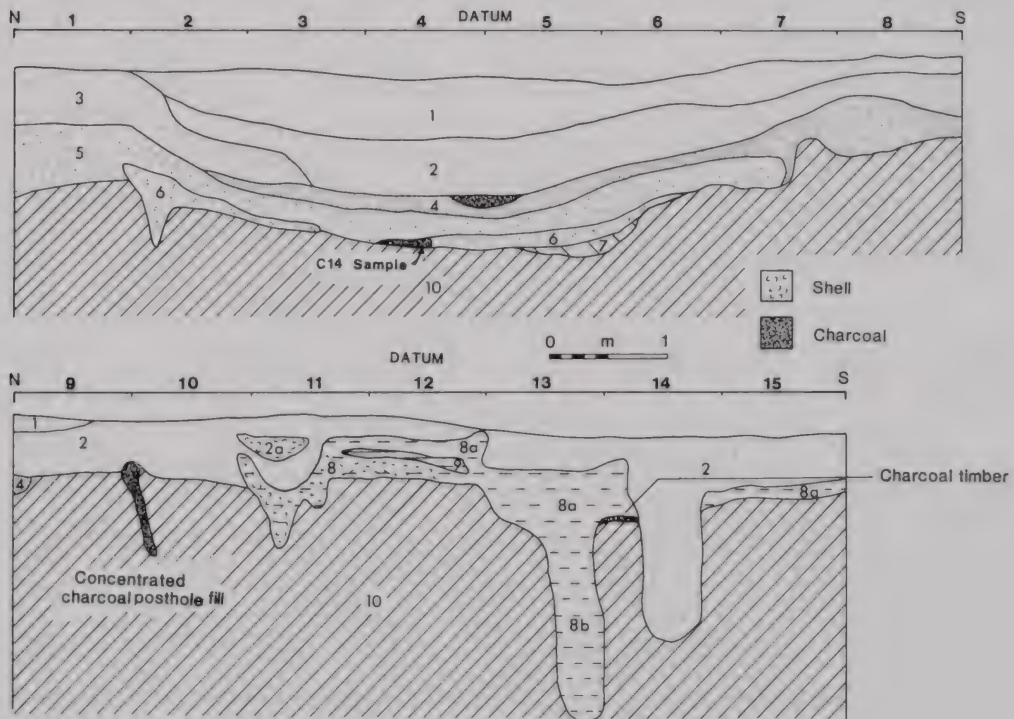


Fig. 78. Area VIII east trench, east section.

Radiocarbon date

The source of charcoal sent for radiocarbon dating is shown in Fig. 78. The archaeological location is: Raupa Area VIII east trench, Layer 6, metre square 4. Layer 6, with plentiful fine charcoal, was situated at the base of the presumed defensive ditch which cuts the north end of the east and west excavated trenches. The position of the layer shows that it is erosion material which has probably fallen into the ditch from the south side at the beginning of the process of infilling, to be quickly followed by bigger blocks of material. Thus the layer and dating sample marks the first filling of the defensive ditch when its usefulness was past. The species identified may reflect the vegetation that was cleared and burnt at this end of the site at the time the defences were put in place.

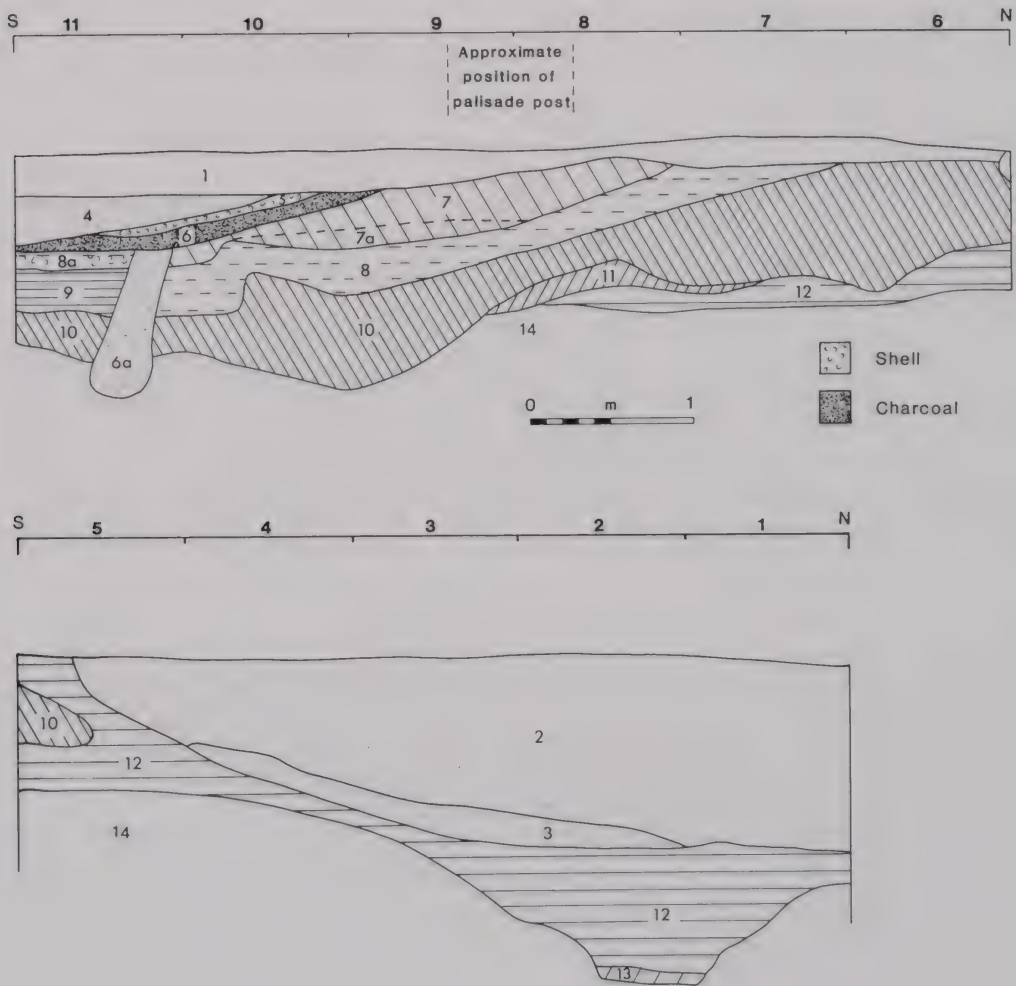


Fig. 79. Area VIII west trench, west section.

The radiocarbon sample of 8.3 g was made up of charcoal identified as follows:

<i>Coprosma</i> sp.	8	identifications
<i>Schefflera digitata</i>	6	"
<i>Leptospermum scoparium</i> (manuka)	1	"
<i>Pteridium aquilinum</i>		
var. <i>esculentum</i> (bracken)	1	"

Identifications were carried out by Rod Wallace, Anthropology Department, University of Auckland, who commented that the material made a good sample for dating.

The radiocarbon analysis was carried out at the University of Waikato, Radiocarbon Dating Laboratory. Results are as follows:

Sample number: Wk-2041

Carbon 14 depletion ($D^{14}C$) is expressed in o/oo wrt 95% NBS oxalic acid:

-18.0 ± 6.1 o/oo.

The isotopic fractionation correction ($\delta^{13}C$) is expressed in o/oo wrt PDB:

$\delta^{13}C \pm 27.9$ o/oo.

Radiocarbon age: modern.

The modern radiocarbon date suggests that this part of the Raupa defences dates from the last occupation of the pa in the early 19th century. In 1893 the surveyor Kenny observed only three defensive ditches at the north end of the site (Kelly 1946:208), these three subsequently being identified by Phillips (1986:99). The fact that much of the fill in the ditch now discovered comprised rock flour from upriver mining operations suggests that had Kenny visited the site a few years earlier he would have seen four defensive ditches, or even more; although why some ditches should be filled and others still visible is not clear. In any event it must be argued from stratigraphic and radiocarbon evidence that the ditch, and probably also the adjacent and parallel stockade uncovered in 1988, both date from the last fortification of the Raupa site.

Hoanga

From square D1, close to stockade post B (see Fig. 74), came a rectangular 60 x 45 mm slab of andesite showing kokowai and the evidence of considerable use for grinding on one flat surface (c.f. Figs 48-51). The natural slab is 19 mm thick.

Stone material

Very little stone material was recovered from Area VIII. In the fill of the buried ditch, east trench, was found a 25.9 g flake of green obsidian with possible unifacial edge damage, and from metre square D4 in the main excavation was found another piece, also green, of 2.3 g. One piece of the abundant chert of variable white, red and brown colour, weighing 21.0 g, was found in metre square A5.

DISCUSSION

The Raupa settlement

In the 1987 excavation report was included a discussion of the arrangement of the Raupa settlement as understood from the archaeological work of 1983, 1984 and 1987 (see Prickett 1990:77-79, 139-143). The 1988 season has thrown further light on the way in which the people of Raupa made use of available space for structures and activities.

Fig. 80 summarises what is known from archaeological evidence of the arrangement of the Raupa settlement in the late period of Maori occupation *ca.* 1820. It must be remembered that large areas are unexplored so that by no means all of the complexity of the settlement is shown. Nonetheless, it is interesting to see that the large Area III house is a focus of activity areas. In front is a compacted area which probably reflects the considerable use of this space. A different kind of use is indicated by the large quantity of waste stone material, the 'anvil' stones and other artefactual material found immediately east and north-east of the house. This was a working area, very likely for a wide range of manufacturing and other tasks.

The location of this working area, between the house and its open area in front and the cooking and refuse disposal behind, reflects the group activities which took place here. Behind the house (Area VI) was an open area while further away (Area II, Area IX and Trench A) are cooking areas with some dumping of waste. Cooking and waste disposal also took place in front of the house, possibly in relation to another unexcavated house which stood nearby.

The conclusion from 1987 work that *ca.* 1820 the Raupa settlement was diminished in size from earlier occupation (Prickett 1990:148) received some confirmation from the second season's excavation. Immediately behind the Area III house (in Area VI) an earlier cooking area was transformed into open space without evidence of any particular use. Area IX, where there was a house in the early period, was later used for waste disposal from nearby cooking ovens - also, in effect, open space.

Burials

The 1987 and 1988 excavations uncovered a variety of burial evidence at Raupa. There was a double burial in a pit (Burial 3), two trussed burials (1, 4), a secondary burial (2), extended burial (5) and four burial pits from which the skeletal remains were largely missing (6, 7, 8, 9). Another probable pit burial was not excavated (10). The two seasons excavations at Raupa uncovered six substantially complete human burials. Salient facts concerning the buried individuals and burial practice are outlined in Table 6.

The burials almost certainly date from the first half of the 19th century, most likely from both before and after abandonment of the Raupa settlement in the early 1820s. The fact that none show any sign of Christian burial practice indicates a final date prior to conversion of the Hauraki people in the middle years of the century.

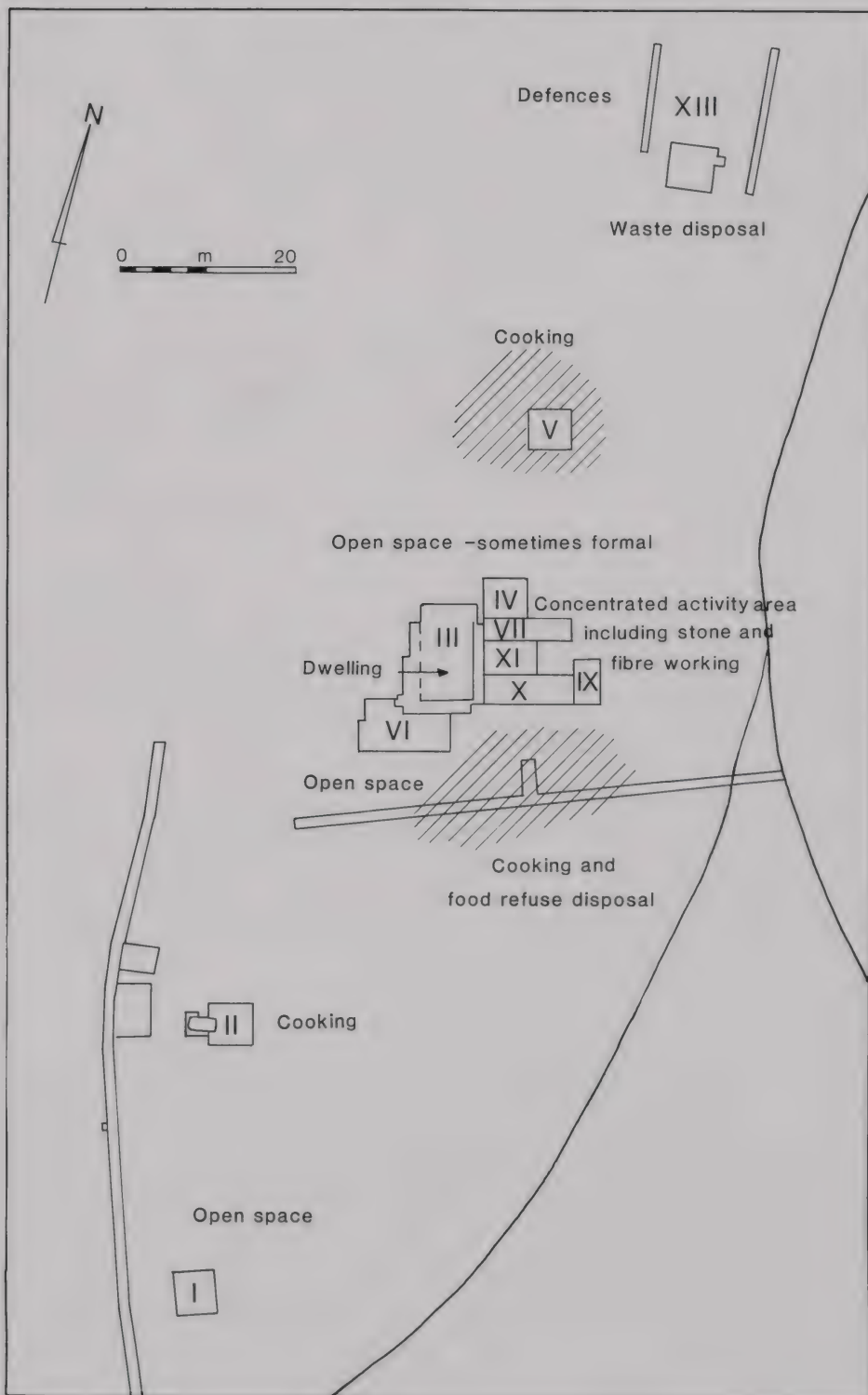


Fig. 80. Plan showing the main activity areas of the later (ca. 1820) Raupa occupation.

Where it could be determined, several of the presumed burial pits can be dated to before final abandonment of the settlement (see Fig. 81). Burial pit 7 was capped by Layer 3 on which there was a large anvil stone propped up by small stones which must have been put there after final use of the pit. Pit 8 was sealed by material which included dog bone pushed into an occupation surface, this showing that people lived here after excavation of the pit and any interment which may have taken place. Pit 9 had two postholes dug into the fill surface. The double burial (3) was also capped by a tramped occupation surface; as was pit number 6 which was found in Area VII, but of which there was no sign in Area III excavated as it was only to the house floor level.

Thus, some time before people stopped living at Raupa they buried their dead within the settlement. Just when this took place is not clear: it may have been over the life of the settlement, but perhaps more likely, it dates from a short time at the end of the occupation period. Burial within a currently occupied settlement was not usual Maori practice.

It could be argued that the pit burials date from a short period immediately before or even during the Nga Puhī attack of late 1821. The general insecurity of the time, perhaps even a siege of the settlement, may have resulted in the unusual step being taken of burying dead within the pa. This also provides an explanation for the subsequent exhumations. It is possible the burials were uplifted for re-interment elsewhere, but the evidence points to a less respectful purpose. In burial pits 6, 7, 8 and 9 there were a few bones left at the bottom in a soil heavily impregnated with red ochre. The fact that not all bones were uplifted

Table 6. Basic data on burials uncovered at the 1987 and 1988 Raupa excavations.

Burial	Sex	Age	Burial form	Ochre	Orientation	Head facing
1	-	11-13	Trussed - on left side	Plentiful	West	North
2	M?	adult	Secondary	Some	East	North
3 (A)	F	30-40	Knees drawn up lying under 3B	Abundant	West	South
(B)	M?	25-30	On right side - knees drawn up. Over 3A	Abundant	West	South
4	M	18-19	Trussed - lying on front. Head missing	Absent	SW	-
5	F	16-18	Extended	Absent	NE	North

strongly suggests that this was not a matter of re-interment elsewhere, but that the remains were plundered out of disrespect. The use to which they were then put is suggested by the shattered long bones in pit 7 which are almost certainly industrial waste. The use of human bone for manufacturing purposes was not infrequently a final act in the defeat of an enemy (see Vayda 1960:94-97).

A second group of burials dates from after abandonment of the site. All were dug through the last occupation surface and so post-date the Raupa settlement. Also separating them as a group from Burial 3 and the other probable burial pits was the lack of ochre associated with the bones, only Burial 1 being similar to the earlier interments in this respect. The fact that the ten burials or presumed burials of both periods are well separated throughout the excavated area suggests that the location of the earlier group may have been known to those who buried the latter. Thus, only a few years - or even a few weeks or months - may have elapsed during which all the burials were put in place.

Burials 1, 2, 4 and 5 were in shallow scoops or pits, or in the last case was probably laid on the ground to be covered by a few centimetres of soil. The range of practices illustrated by these four finds may not indicate changes over time so much as differing preferences by whanau decision makers or a variety of practical demands. As an example of the latter, it is possible the secondary burial (2) was of an individual who died elsewhere, to be brought back to Raupa for final interment.

It is a surprise that there is no uniformity apparent in the burial style. Male and female, young and old are laid to rest in as great a number of ways as there are individuals. Only the distinction between the pit double burial and other presumed pit burials of the Raupa occupation period and the variety of shallow burials which came after offers a pattern. Later burials mostly lack ochre whereas the presumed pit burials of what may have been only a few years before are marked by great quantities of it throughout the lower pit fill and in the case of Burial 3 on the bones themselves.

The variety of burial practice and decreasing use of ochre to paint bodies may reflect the uncertainty of Maori society in the first half of the 19th century. Musket wars between the tribes and the incursion of Pakeha culture in all its commercial, religious and technological guises may have upset old and agreed ways of doing things. Alternatively there may always have been flexibility in these matters: the variety of burial arrangements at the Washpool site in the Wairarapa (Leach and Leach 1979) which date from the 12th or 13th century suggest there was nothing new in this.

Adzes

In the two seasons work at Raupa a total of eight adzes or substantial parts thereof were found, along with six small polished fragments. Thus as many as fourteen adzes may be represented altogether. All are, or appear to be, of the common rectangular, rounded rectangular or sub-triangular Duff (1956:166) Type 2B form, the most abundant adze of late sites, especially in the North Island. Two more broken adzes of similar form were found in 1984 by Phillips (1986:102, 105).

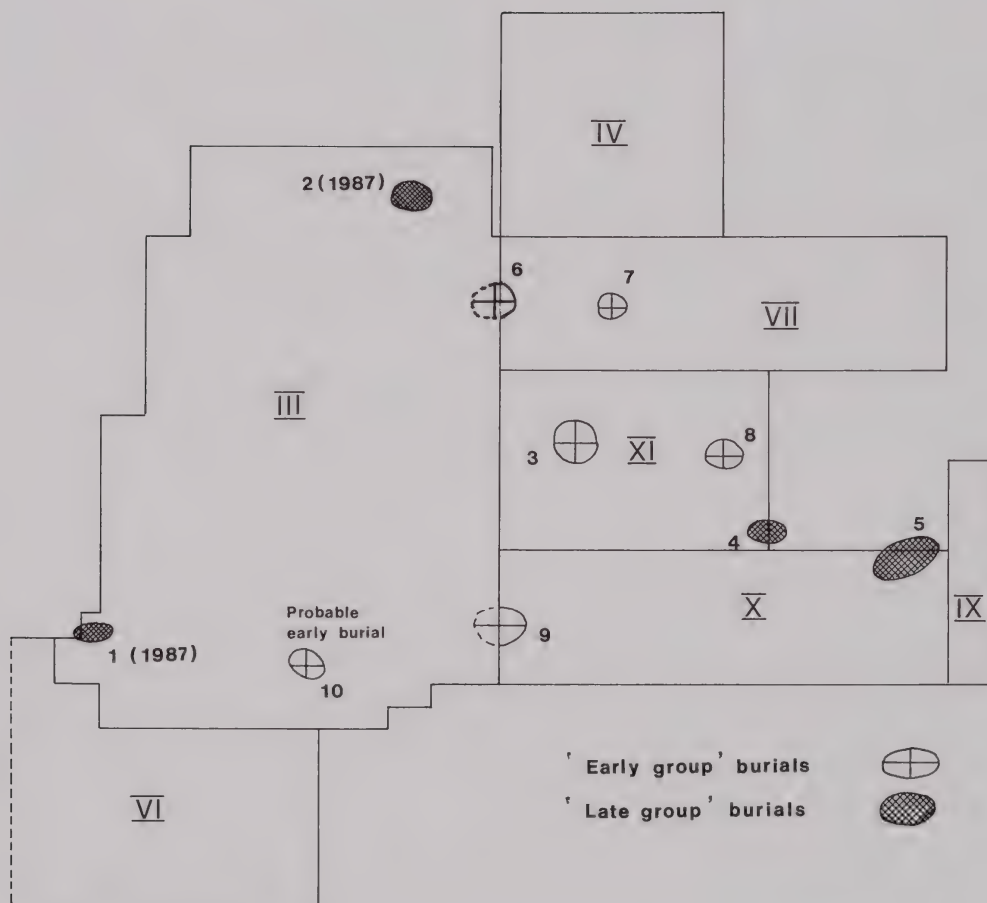


Fig. 81. Plan showing distribution of 'early' and 'late' burials at Raupa.

The predominance of Waiheke Group greywacke (Schofield 1967) as adze raw material was remarked upon in the report on the 1987 work (Prickett 1990:145, 147). All eight further pieces are of the same stone, only one adze of the 1987 season being of a different raw material, in this case basalt, probably from the Tahanga source on Coromandel Peninsula (Prickett 1990:Fig. 38). The same greywacke is abundant among adzes from the Oruarangi site where 14 of 17 examples listed by Fisher (1936:18) are identified as such. The raw material of the other three adzes listed by Fisher is not given. The Raupa adzes and fragments show a range of greywackes including very fine grained green material, relatively coarse grey, and the stone, sometimes called 'chipwacke' (see Schofield 1967), which is in this case a fine-grained green greywacke with small black inclusions.

Waiheke Group greywacke is shown by Schofield (1967) to occur in the inner Hauraki Gulf islands of Rakino, Motutapu, Waiheke and Ponui, throughout the Hunua Ranges and in the Hapuakohe Range of hills west of the Hauraki Plains. A more detailed recent map

gives the distribution of greywacke and related rocks on Motutapu and Rakino Islands, the east end of Waiheke and the Whitford district (Kermode 1991). Field observation suggests the high quality green material probably came from the inner Hauraki Gulf islands.

Grey Waiheke Group stone is common in the river beds along the western shore of the Firth of Thames. Schofield (1967) makes an interesting comment in noting that the Manaia Hill Group of rocks, which are widespread on the Coromandel Peninsula and also west of the Hauraki Plains, are "...characterised by "chipwackes" (sandstones with angular chips of argillite)". These rocks may thus be the source of the chipwacke adzes in the Raupa collection.

Among the Raupa artefacts the patu onewa found in three pieces in the 1987 and 1988 seasons is also made of greywacke, again of the chipwacke variety. Greywacke was also present in the form of large water-rolled anvil stones and was present among oven stones.

Patu muka

A total of four handle and two beating parts of six separate patu muka were found in Areas IV, VI, VII and X. The locations are at the rear of the Area III house and east of the house where the pieces may be associated generally with the varied activity debris concentrated here. A glance at Figs 24-27 in this account and Figs 41-42 in the 1987 report (Prickett 1990:146) shows a variety of handle forms, and beating ends which conform closely to the different shapes presented by the utilised water worn stones. The preferred stone (five of six items) is grey andesite. Phillips (1986:102) reports another patu muka found in her 'Area 3' (Trench E).

Patu muka were used in pounding stripped flax leaves to produce a soft clean fibre for prestige woven cloaks. The thick fibre hanks were laid on a smooth boulder, such as were found in Area VII especially, and beaten until soft enough to use. Patu muka breakage was considerable if we are to judge from the very many fragments found at Oruarangi. Six broken pieces at Raupa, and no complete item, support the conclusion from the larger Oruarangi collection.

Nephrite

Seven of a total of nine nephrite items or fragments found in the 1987 and 1988 excavations are described in the section which covers Areas VII, IX-XI in this report. The concentration of these items to the east of the Area III house mirrors the distribution of obsidian, chert and other material. Clearly it reflects the use of this place as an important activity area.

The three pendants or parts thereof represent a range of types including ear pendant of kuru or kapeu form, a free-form, or adze-shaped pendant and a well shaped triangular item which is related to the ancestral Polynesian whale-tooth ornament and its many derivatives. Polished fragments and one complete item represent as many as five small chisels used for fine wood working.

Bone artefacts

Bone artefacts found in the two years excavation include pieces of five tattoo chisels, two bird spears, two fishhook fragments, two needle pieces, and five pieces of sawn or otherwise worked bone. Phillips (1986:102, 105) found a bone awl, toggle and drilled dog tooth in her 'Area 3', Trench E. Four of the five tattooing chisels were found together in Area XI, metre square A5 (Figs 39-42), showing that these items were not accidentally lost but carefully placed for later recovery. Similarly, four of the pieces of worked bone (Figs 38, 43-45) were found in Area IX at the south-east corner of the excavation; the other was from the 1987 Area II (Prickett 1990:108). Just why the worked bone was together in Area IX is not clear, it may be entirely coincidence.

Bone artefact finds represent a range of activities: tattooing, fishing, birding and sewing. Mammal and bird bone is used. As with other artefactual material it is surprising how little was found; the artefactual productivity of Oruarangi appears yet more remarkable.

Hoanga

Grindstones were concentrated in Area VI behind the house, and in Areas IV, VII and XI, east of the building. The majority of pieces were derived from flaggy andesite such as are illustrated in Figs 48-51 and most were used in kokowai grinding. Kokowai was also prepared on water-rolled stones (Figs 54-58) and in one case on the surface of a broken patu muka handle (see Fig. 24). Fragments of kokowai might also be used directly as in polishing and colouring items: examples are described in the Areas VII, IX-XI section in this report.

Other hoanga were used in grinding and polishing stone tools, the most interesting example bearing an incised design on one surface (Prickett 1990:147). Unlike the natural slabs used in kokowai preparation this is made of fine-grained sandstone. Two more examples of much used sandstone hoanga were found in Area VII and are pictured here in Figs 52 and 53. In Area III at the rear wall of the house was found a piece of pumice much used for polishing on one flat surface (Prickett 1990:123).

Material of European origin

Half a century before Marsden visited Raupa in 1820, Cook penetrated the Waihou River, pushing upstream in a pinnace and long boat to within a few kilometres of the Waihou and Ohinemuri confluence (Beaglehole 1955:206). In the decades following there was considerable European contact with the district, mostly to obtain spars for which the tall and straight kahikatea so admired by Cook was well suited. In 1801 a timber cutting gang from the 'Royal Admiral' went so far as to erect a 2 m high defensive stockade on the bank of the Waihou River (Smith 1813). To the north, in the Bay of Islands, there was a growing European population by 1820. Thus Maori people living along the Waihou River had considerable opportunity for contact with Pakeha many years before Raupa developed into the substantial settlement described by Marsden. This is not reflected in the few items dating from the Maori settlement which are of European origin.

Most material of European origin described in reports of the two seasons work clearly dates from after Maori occupation, being recovered from surface silt or upper mixed layers.

Only a few items can be argued to belong to the period of Maori settlement at Raupa, probably in the early 19th century. These are a glass wine bottle fragment in Area IV (Prickett 1990:134-135), a piece of rusted iron from within a posthole in Area VII and a clay pipe bowl fragment from Area X. Pig bone was identified in Area II and possibly Area I (Prickett 1990:88, 107). A blue glass bead found in disturbed ground by Phillips (1986:99) may also relate to the Maori occupation.

It was a surprise that so little material was found to reflect many decades of contact in a part of northern New Zealand long frequented by European visitors. Archaeological evidence at Raupa suggests that stone adzes were still used for wood-working, obsidian and chert knives for cutting and scraping tasks, and bone fishhooks, birdspears and needles still occupied their place in everyday life. It could be argued that valuable iron and steel tools were more carefully looked after and thus were not left at the site; it is the experience of archaeology, however, that even the most valuable items might sometimes be lost. As late as 1820 European material culture apparently had made little impact on Ngati Tamatera and other people living along the Waihou River.

Obsidian

In two seasons work a total of 3588 pieces of obsidian weighing 19558.1 g were recovered at the Raupa site. This very large sample of almost 20 kg deserves a great deal more study than is possible in the present report, nonetheless some general aspects of the collection may be described and conclusions drawn.

It is interesting to speculate on the total volume of obsidian in the Raupa site, with *ca.* 20 kg coming from just two percent of the area. What is more, from the evidence of artefacts recovered, Raupa had nothing like the intensity or longevity of occupation as Oruarangi and possibly other Hauraki sites as well. Thus the total volume of obsidian transported to this relatively small group Waihou River sites may have been very considerable indeed.

Almost all Raupa obsidian came from Mayor Island, 95.5% by weight coming from that source. Of the remainder, 3.3% came from the Waimata Stream, Waihi, source which has been described by Moore and Coster (1989) and 1.2% was pale grey in colour and sourced only to a variety of Coromandel, Great Barrier Island or central North Island localities. One small piece originated in Whangamata, Coromandel, and three fragments of black obsidian in Area IV came from a source unknown.

The preference for Mayor Island obsidian is very marked, the more so when one considers that the alternative Waihi source is only 20 km from Raupa and is close by the shortest route to Mayor Island. The streambed origin of Waihi obsidian is reflected in the water-rolled, sometimes pitted, surfaces that are common among that material. This demonstrates the use of small cobbles which were not as easily worked or as useful as the much larger blocks available from Mayor Island.

The distribution of obsidian in excavated parts of Raupa shows an interesting pattern. In Areas II and VIII there was virtually none, and the little that was found in Area V probably reflects its location at the edge of the intensive working a few metres to the south. Also, Area

I had comparatively little obsidian which may be scattered from a more intensive working area nearby, or could simply reflect very occasional working or use of the stone in this area. It is the large area excavated about the 1987 house that deserves the most attention for its distribution of obsidian.

Fig. 82 summarises obsidian distribution in Areas III, IV, VI, VII, IX, X and XI. For the purpose of this analysis Levels I and II material is combined, at least partly because of the difficulty in accurately assigning material in some parts of the excavation. Most stone came from Level II, but much of that assigned to Level I may actually belong with the later occupation (as in Area IV, see Prickett 1990:130). Also, Area III was not fully excavated so more material here may increase the present figures. Nonetheless, the distribution as shown probably reflects fairly accurately the actual scatter of obsidian in the upper occupation level.

Within the house itself obsidian was scattered about the floor, except that less was found in front of the rear wall than elsewhere (see Prickett 1990:119). This compares with the situation in the Moikau house, Palliser Bay, where obsidian, in a much smaller sample, was more plentiful at the rear than elsewhere in the building (Prickett 1979:42). At Raupa, however, we cannot be certain how this distribution reflects use inside the house since it may have been altered by activity after the building was destroyed by fire. At the rear of the house (Area VI) there was little obsidian use.

The major concentration of obsidian was east of the front part of the house. This was obviously an important area for preparing obsidian tools and probably also for using the sharp-edged stone in tasks such as cutting flax and other fibre and working wood. Obsidian was also used for processing food, such as cutting up birds, fish and other animals, but it seems unlikely that this area, away from cooking ovens and close to the entry of an important house, would have been used for this purpose. Fig. 82 shows clearly that the excavated area covers the focus of whatever activity was taking place, with obsidian densities decreasing to the outer margins of the excavation. At the south-east corner in Area IX what little obsidian was found probably marks the outer edge of this focus of intensive use.

Analysis of the 1988 season obsidian shows that approximately 60% of all pieces are flakes struck on purpose or accidentally from larger blocks. Most of the remainder are shatter pieces, with *ca.* 1.5% cores or core remnants. Approximately 30% of flake and shatter pieces alike have been used for cutting or scraping tasks which have left evidence in the form of edge-damaged, battered or notched margins. The very large obsidian assemblage from Raupa warrants more detailed analysis.

Chert

A total of 1258 pieces of chert weighing 16354.0 g were recovered in two seasons work at Raupa. By weight more than half of this came from Areas VII, IX-XI and almost all of the remainder from Areas III, IV and VI. The outlying Areas I, II, V and VIII produced only 304.9 g between them, 82% of it from Area I.

Most of the chert was of a recognisably similar material, predominantly red, white and brown in colour, but which could include also a variety of other colours such as grey and

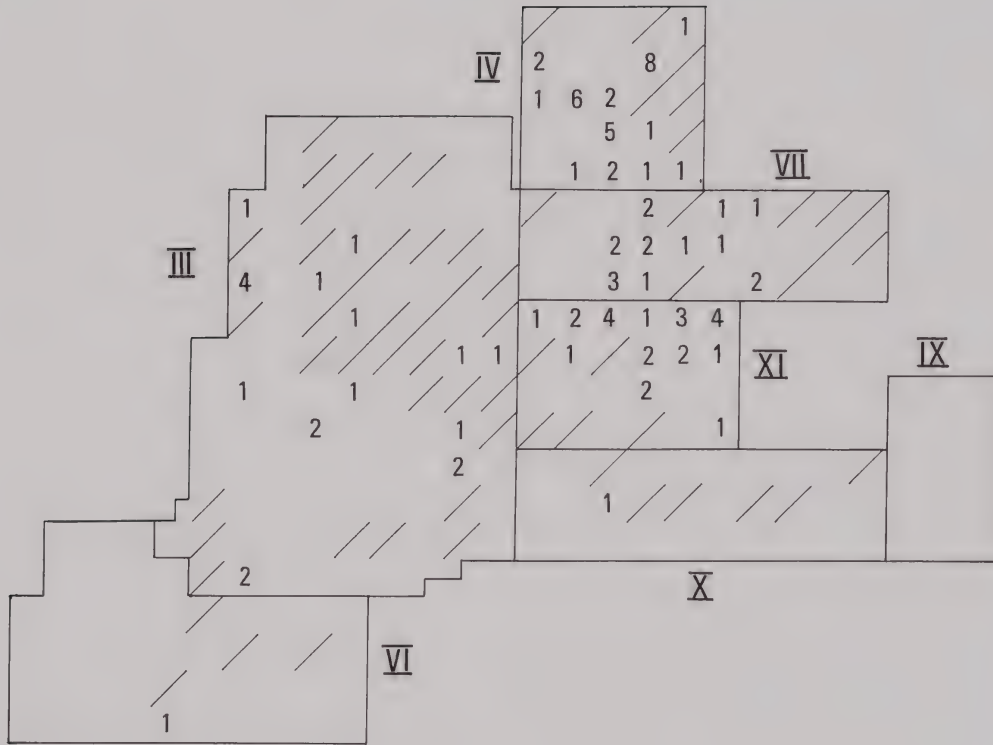


Fig. 82. Plan showing obsidian distribution in Areas III, IV, VI, VII, IX, X and XI. Numbers give weight of material in metre squares - '1' = 100-200 g, etc. Diagonal line marks metre squares of 50-100 g.

yellow. This chert could vary greatly in quality from fine-grained material to coarse unusable stone. Some had water-rolled surfaces, suggesting that it came from stream beds as well as primary deposits, almost certainly in the nearby Coromandel Range. There was in addition a wide variety of other cherts and a few pieces of chalcédony and jasper.

In his summary of New Zealand chert sources Moore (1977:55) shows the Coromandel Peninsula and ranges south to the Ohinemuri River to be made up almost entirely of chert bearing formations. On the western side of the Hauraki Plains and on Hauraki Gulf islands chert is associated with the Waiheke Group greywacke from which most Raupa adzes have been made. Thus the Raupa material may also have come from there. With such abundant sources nearby it seems unlikely that it came from further afield.

Chert was probably used for much the same cutting and scraping jobs as was obsidian, although it is a tougher, less brittle, material which might be an advantage in some tasks. It is also, however, coarser and often less easy to flake than obsidian. Much of the recorded weight of chert comprises large blocks of variable or poor quality material which have in all probability been discarded as not worth further attempts to strike off useful sharp-edged tools.

An archaeological history of Raupa

The report on the 1987 excavations concluded with an outline history of Raupa based on the results of that year's work (Prickett 1990:148-150). The second season's excavations confirm some of the earlier conclusions and add to our knowledge of the human history of the site.

In the 1987 discussion it is suggested there was evidence in Areas I and V for reversion of these parts of the site to open ground from previous use for structures or cooking activity. In Area II a storage pit, and many postholes to show structures, are buried by fill in which are shallow cooking ovens. The 1988 work showed a similar trend in Area VI with early cooking ovens covered by fill on which there was a featureless occupation surface. At the south-east of the combined Areas VII, IX-XI excavation the Level I structure, probably a small dwelling, was covered in crushed midden, black soil and oven stones on which surface there were a few postholes.

The conclusion to be drawn from all this is that the last occupation at Raupa in all likelihood involved a smaller population than the earlier settlement. Whether this was at the time of the 1820 visit by Marsden, or later, is unclear. Marsden's account suggests a large and thriving settlement, but it is possible that some stage before his visit there was an even larger settlement here, utilising more fully the available space within the bend of the river and behind the defensive lines across the isthmus. Alternatively the archaeology may document a decline after Marsden's visit.

The radiocarbon dates suggest that the earlier occupation deposits at Raupa were at most 100 years older than the 1820 settlement. The age difference may have been much less. Nowhere in the site was there a suggestion of soil formation between earlier and later occupation deposits. Silt layers are likely to relate to particular flood events and may mark the passage of no more than a day or two. The traditional reference to Raupa being visited as early as "A.D. 1600" (see Kelly 1945:210) may refer to a settlement at the excavated site, but no sure indication of occupation at this early date was found.

In the historic outline preceding the 1987 report (Prickett 1990:73 and 75) the fate of Raupa following Marsden's visit is briefly outlined. The Nga Puhi who took Te Totara in late 1821 went on to Raupa where, according to a 1893 Land Court witness, they were defeated (Rihitoto 1893).

It was suggested in the conclusion to the first season's work that the Nga Puhi attack on Raupa may have had a very different outcome. The large house burnt to the ground, its floor partly dug over for cooking ovens, with fragmentary human bone trod into the old ground surface, together indicate a violent end to that phase of Raupa settlement. Further evidence is now available. In Areas VII and XI, pieces of human bone were found scattered about the occupation surface, a wooden bowl and cloaks were burned in shallow scoops, and widely scattered fragments of patu onewa were found to suggest that the weapon may have been broken in fighting rather than by fire as was suggested in the 1987 report. Also, as has already been argued, it is possible that some of the burials were uplifted out of disrespect and ritual defilement.

Whatever the actual event, an argument can be made on the archaeological evidence alone that there was a violent end to the later phase of occupation at Raupa which involved at least some deliberate destruction, defilement and also cannibalism. That these should mark an unknown event some time after the Nga Puhi attack of late 1821 seems unlikely.

The Raupa settlement above all illustrates something of the political uncertainty of the early decades of the 19th century. The large and thriving settlement seen by Marsden may have included people who had moved up the Waihou River to escape Nga Puhi and other raids from the north. It was primarily, however, a well established pa of the Ngati Tamatera people in which Marsden noted houses "...much larger and better built..." than any he had seen previously in New Zealand (Elder 1932:255). These large houses may reflect a society not yet seriously disrupted by warfare which was to engulf New Zealand in the following two decades. At Raupa the disruption - and indeed destruction - is clear in the archaeological record.

After the Nga Puhi raid of 1821 the Hauraki tribes retired southwards for fear of a repeat visit. For some years they lived among Ngati Haua and Waikato tribes until in 1830 the battle of Taumatawiwi was fought between them and the host tribes. This fiercely fought encounter was not decisive but the Hauraki people agreed afterwards to return to their homes. Just how Raupa fits into these events is not entirely clear. It is likely that the pa was substantially if not completely abandoned soon after the Nga Puhi raid of late 1821. Before the Hauraki tribes accepted Christianity - and consequently very different burial practices to those in evidence at the site - Raupa was an abandoned settlement deemed suitable as a burial ground for its associations with the recent past.

One other general point needs to be made. In the above discussion regarding items of European origin it is remarked that European material culture had little apparent impact on the technology and economy of the people at Raupa as late as 1820. This result was counter to expectations, based on the supposed devastating impact of new technologies and material culture on the old Maori world. At Raupa there was little archaeological evidence of this impact. The conclusion must be that whatever imported items were present, the people of Raupa still depended largely upon traditional ways of doing things. While it may be suggested that the new material culture was too valued to be discarded or lost, nonetheless obsidian and chert knife technology, stone adzes and other stone and bone tools show that these anyway were still important.

Acknowledgements. Thanks are due to the Ngati Tamatera of Paeroa and surrounding districts for accommodation at Te Pai o Hauraki marae and for support in this project which I hope has added something to knowledge and understanding of their past. In particular I would like to acknowledge the practical assistance and unflinching kindness of the late Huhurere Tukukino, Dick Rakena, Mate Royal and Winnie Hutchinson.

Major funding came from the New Zealand Historic Places Trust with assistance also from the Labour Department. The Anthropology Department, University of Auckland, provided excavation equipment and laboratory space. The Auckland Institute and Museum gave essential support for the two year project.

Thanks are also due to the large number of people who gave their time and effort to take part in the 'dig'. I hope I will be excused if I do not list everyone here. I must, however, thank in particular

area supervisors Anne Leahy, Jolanda Cupido, Brian Wedlock, Tony Walton, Nancy Tayles and Warren Gumbley. Pat Stodart provided essential help in organising gear and making sure the excavation ran smoothly. Careful work with the burials and the recovery of some information before the pits were refilled was the responsibility of Nancy Tayles and Yuriko Igarashi. Nancy Tayles also prepared a report on the burials which is the basis of the description in this report.

Analysis of stone material was carried out largely by Kath Prickett with specialist help from Dante Bonica and Phil Moore. Liz Hudson examined the fragmentary and crushed human and dog bone from Areas VII and XI. Rod Wallace of the University of Auckland Anthropology Department identified charcoal in the radiocarbon samples. Alan Hogg and Tom Higham of the University of Waikato Radiocarbon Dating Laboratory provided the radiocarbon dates and helped in their analysis. Dilys Johns of the University of Auckland Anthropology Department came to the site at a moment's notice to uplift the Area VII wood and fibre deposit, and later conserved the material. Maureen Lander made an excellent photographic record of the fibrework, some of the results of which are included in her report which is published in this volume. Joan Lawrence drew the illustrations. Mary Best typed the manuscript.

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